Do Germs Cause Disease

Christian Science and Disease

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CHRISTIAN SCIENCE

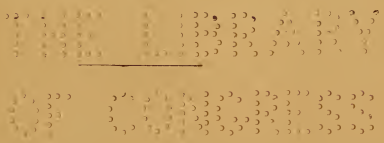
AND

DISEASE

BY

SAMUEL J. WILSON, M. D.

The Knowledge of To-day



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PREFACE.

The purpose of writing this book is to present Christian Science in a rational light.

To give the common-sense cause of disease.

To explain fully the effects of alcohol and tobacco upon the human system.

To give brief notice to quacks and patent medicines.

And to examine some of the "inner workings" of that organization known as the Pure Food Commission.

In the following pages no attempt has been made to "exploit fanciful theories, or to defend improbable hypotheses;" no attempt to favor schools, creeds, or codes, but to state the facts in a plain and simple manner.

Briefly mentioned the facts are these:

First. There is nothing miraculous or supernatural about the cures performed by the Christian Scientists. True, with some, "a touch, a blessing, and lo, disease vanishes into thin air, into the realms of immunity where sickness is unknown, and where suffering cannot enter." Yet this does not suggest a step upward into the higher regions of human understanding, and is fully explained in the following pages.

Second. The man who can convince the world that health depends upon unchangeable laws, will do more to prevent disease than the art of medicine has ever done to relieve it. Yet the doctor who tells the plain, unvarnished truth will often lose his patient, because some people like to be humored in their ideas of sickness.

Third. Alcohol and tobacco frequently produce dyspepsia, and dyspepsia is the mother of disease, yet it is wonderful how some people try not only to destroy digestion, but the digestive organs. "We are told that however graciously the Good Being may deal with the hearts of men, there is no evidence that He ever pardons the stomach and liver."

Fourth. Any quack can dose a patient with pills and poor whisky, but it takes fresh air, exercise, and a good cook to build up a weakened body. Bread that is only half baked will never make a weak man strong. Bread may be the staff of life, but there is nothing said about dough.

Fifth. The originators of the Pure Food Commission may have acted in good faith, yet the inspectors will never give us pure food, prevent sickness, or prolong human life. On the other hand, the absolute authority which the author understands is given the inspectors is demoralizing to human nature.

Knowledge is our only safeguard against error and fraud. "Knowledge teaches us that justice is

the only amaranthine flower, and truth the only lasting virtue."

While the author has endeavored to give a full and clear description of the various subjects mentioned, he has also aimed to eliminate all superfluous verbiage and present such subjects in the fewest words consistent with a correct understanding of each. This reduces the size of the book, and gives the greatest amount of knowledge with a minimum amount of reading. Medical terms are omitted and each chapter is written in a plain conversational manner which can be readily understood by anyone. This will prevent confusion, and make the following pages more interesting. In a word, makes every page a lesson.

There is also a chapter on "Do germs cause disease?"

CHRISTIAN SCIENCE.

In her book *Science and Health,* the author understands Mrs. Mary Baker G. Eddy says there is no matter, evil, sin, disease or death. "Matter is mortal error and every (mortal) man a liar."

Mrs. Eddy also says: "Sin and sickness are but the effects of error," (page 470; "man is not matter made up of brains, blood, bones and other material elements," (Page 474) "brains do not think and nerves do not feel; there can be no pain or pleasure in matter." (Page 484.) "Nerves have no more sense apart from that which belief bestows upon them, than the fibers of a plant."

The five senses are defined as mortal beliefs only, and on page 485 "Christian Science shows them to be false; they are frauds, lies and cheats."

In her book, the *Unity of God,* Mrs. Eddy says: "God knows no such thing as sin."

Regarding her belief Mrs. Eddy says: "This has not separated me from God, but has so bound me to Him as to enable me instantaneously to cure a cancer that had eaten its way to the jugular vein, replace dislocated joints, and raise the dying to speedy health."

On page 55 *Science and Health,* Mrs. Eddy says she has restored health in cases of both

acute and chronic disease and in their severest forms. Secretions have been changed, the structure has been renewed, shortened limbs have been elongated, cicatrized (deformed) joints have been made supple, carious or dead bones have been restored to healthy condition. What is called the lost substance of lung has been restored, and healthy organizations established." And then Mrs. Mary Baker G. Eddy remembers the commandment "Do unto others," etc., and adds on page 400: "Until the advancing age admits the efficacy and supremacy of mind, it is better to leave the adjustment of broken bones and dislocations to the fingers of the surgeon."

In speaking of Science and Health, page 79-189-291-2, Mrs. Mary Baker G. Eddy says: "In this volume of mine there are no contradictory statements,—at least none that are apparent to those who understand its propositions well enough to pass judgment on them." Again she says: "It is sometimes said that Christian Science teaches the nothingness of sin, sickness and death, and then teaches how this nothingness is to be saved and healed. The nothingness is plain, but it should be understood that error is nothing, and that its nothingness must be demonstrated in order to prove the somethingness—yea, the allness of truth." "This idea of human nothingness which Science inculcates enrages the carnal mind, and is the main cause of its antagonism."

Again Mrs. Mary Baker G. Eddy describes

the brain as "a mortal consolidation of material mentality and its suppositional activities."

Mrs. Mary Baker G. Eddy also says "Electricity is but the least material mindlessness which forms no link between matter and mind and destroys itself."

Question: "Who understands those propositions well enough to pass judgment"?

Mrs. Mary Baker G. Eddy says: "God is mind and God is all, hence all is mind." That settles it.

In the denial of matter Mrs. Eddy places herself and her followers in a very ridiculous light, and this claim is responsible for much of the prejudice existing against the Christian Scientists. According to this belief our five senses are five personal lies, and matter is a "mortal illusion." This belief strikes out at once from the field of human learning every branch of physical science. Natural philosophy goes out at the bottom. If "there is no matter," then, of course, all the properties of matter are insane illusions and idle fancy. Extension, weight, inertion, mobility, porosity, expansibility, tenacity, brittleness, and malleability, are but childish fancies and idle dreams. Attraction, repulsion, electricity, magnetism, light, sound and heat, are but different forms of error. Our public schools are gigantic swindles and lies, aiding in the propagation of these popular illusions.

Chemistry also goes down with natural phil-

osophy. All the boasted experiments of chemistry are but forms of "mortal error"; since, there being no matter, there can be no chemical properties of that which does not exist. Geometry is a fraud, because there are no dimensions nor forms to that which is not. Geology is no longer entitled to the name of science . We vainly thought it revealed to us the story of the rocks, but it does not, since rock is but a name for hardened matter, which, according to Mrs. Eddy, has no existence save in human fancy. Astronomy, that splendid dream of the stars, is alas but a dream, an illusion of our senses. There is no matter, so those whirling worlds and sparkling orbs are but fancied fire-flies flitting across the human brain.

Pardon us! There is no brain, since brain is a form of matter. We should have said, flitting across the human fancy.

Anatomy is no longer a science, since bones are formed of matter, and flesh and blood are chemical compounds. Now, since matter does not exist, it is but folly to cram the minds of youth with "mortal error" regarding arms, and bones, and muscles, and hair, and stomachs, and livers, and lungs. Of course, there being no matter, there is no such thing as circulation of the blood, rupture of blood-vessels, fracture of bones, or dislocations.

Hygiene is a humbug. Why should one burden himself with rules of diet, with exercise, or

cleanliness, when all these things are but "the belief of error." Why scrub and bathe and house-clean, when dirt does not exist? Human thought, like Noah's dove, flits hopelessly over the bosom of infinite space, yet finds no resting place.

According to Mrs. Eddy, all judiciary proceedings against criminals are the most absurd nonsense; what folly to proceed to punish a man for theft when theft is a thing impossible, since there is nothing to steal. All that we think we see and covet, are but the images of our deluded fancy, for, "there is no matter." How silly to try to punish a man for murder, since according to Mrs. Eddy, "there is no death." Therefore, there was no murder.

A certain Christian Science doctress once stood over the earthly remains of her departed husband—or rather "the departed fancy of her immortal mind"—and solemnly and peacefully declared, "There is no death"; yet she bought an imaginary coffin in which to place in imaginary earth the imaginary body of her imaginary husband, thence she went to the imaginary marble dealer and further invested an imaginary amount in an imaginary monument to place over the imaginary grave of the imaginary object of her imaginary hopes and fears.

Such teaching from Mrs. Eddy makes the Christian Scientists appear very ridiculous. According to her teaching, the Christian Scientists go about curing disease when there is no disease,

saving people's lives when there is no death, relieving pain when there is no pain, curing cancer when there is no cancer, for cancer would necessitate matter, and matter is but "mortal error," so says Mrs. Mary Baker G. Eddy.

No doubt many of these so-called healers believe that, supported by the full possession of Mrs. Mary Baker G. Eddy's book, they can actually cure typhoid fever, small-pox, consumption, abscess of the liver, cause broken bones to unite, reduce dislocations, prevent accidents, stop bullets, ward off imaginary disease and death, "cleanse the lepers, cause the dead to rise up, the deaf to hear, the lame to walk, the blind to see."

With these people an epidemic would be a camp-meeting revel, or a carnival of faith-curing glory, in which they could display the wonderful healing powers of their Divine gift. A touch, a blessing, and lo! disease vanishes into thin air, into the realms of immunity, where sickness is unknown, and where suffering cannot enter. Cancer and consumption do not exist, because there is no disease, curable or incurable, no contagion, infection, or heredity. The healer would pray in the midst of an alarming hemorrhage, blood-poisoning or convulsions, with the same assurance that the professional juggler boils eggs in a new silk hat borrowed from one of the audience, and which he promises to return unsoiled, or with the same assurance that he exhibits the vanishing lady to a surprised assembly. Fractured

skulls, neuralgia of the heart, or asphyxia, are only fictions of an unbelieving imagination.

The healer would invade the domain of surgery and undertake the care of the broken leg, or a wound of the abdominal cavity, praying the several fragments into apposition, or the several tissues into continuity.

Ridiculous as all this is, there is but one remedy—Education. The law does not affect these people, does not reach them. Lawyers of greater or less distinction can always be found to espouse the cause of the healer in the toils and cunningly distort the facts to prove that these people do not practise medicine because they give no drugs. Grand jurors, too, may arise in their places pending the consideration of a proposed indictment, and tell of the wonderful cures that have been performed within their own knowledge, by the prisoner.

Perhaps some of these healers, these latter-day prophets, are self-deluded and sincere, but the sole element with the Christian Scientists, who act by faith and depend upon mental states for the results, is one and the same thing—suggestion.

The well-known writer, Mark Twain, gives us the following as his experience with Christian Scientists, and their treatment. He was on his way from Vienna, from the appetite-cure in the mountains. He says he fell over a cliff in the twilight and broke some arms, and legs, and one

thing and another, and by some good luck was found by some peasants, who carried him to the nearest habitation. In a village not far away were a horse-doctor and a Christian Science lady from Boston. The latter was sent for, and she sent word back that there wasn't any hurry, and she would be over the next day. In the meantime she would give absent treatment.

Morning came at last; so did the lady from Boston, and after a somewhat extended conversation I discovered she was under the inspiration of the third degree, therefore, there could be no profit in continuing this part of the subject. I shifted to other ground and inquired further concerning the discovery of the science. Much of that part of the following imaginary conversation carried on by the "Lady from Boston," is found in Mrs. Eddy's "Key to the Scriptures."

Did the discovery come suddenly, like Klondyke, or after long study and calculation like America? "The comparisons are not respectful since they refer to trivialities, but let it pass. I will answer in the discoverer Mrs. Eddy's own words: "God had been graciously fitting me during many years, for the reception of a final revelation of the absolute principle of absolute scientific mind-healing.'"

"Many years. How many?"

"Eighteen centuries."

"It is amazing."

"You may well say it, sir, yet it is but the truth.

This American lady, our reverend and sacred Founder, is distinctly referred to and her coming prophesied, in the twelfth chapter of the Apocalypse; she could not have been more plainly indicated by St. John without actually mentioning her name."

"How strange, how wonderful!"

"I will quote her own words, from her key to the Scriptures: 'The twelfth chapter of the Apocalypse has a special suggestiveness in connection with this nineteenth century. 'There—do you note that? Think—note it well."

"But what does it mean?"

"Listen and you will know, I quote her inspired word again: 'In the opening of the sixth seal, typical of the six thousand years since Adam, there is one distinctive feature, which has special reference to the present age.

'Thus: Revelation 12-1: And there appeared a great wonder in Heaven—a woman clothed with the sun, and the moon under her feet, and upon her head a crown of twelve stars.'

"That is our Head, our Chief, our Discoverer of Christian Science—nothing can be plainer, nothing surer—and note this:

"Revelation 12-6: And the woman fled into the wilderness, where she had a place prepared by God.

"That is Boston."

"I recognize it, madam. These are sublime things, and impressive; I never understood these

passages before; please go on with the—with the proofs."

"Very well. Listen:

'And I saw another mighty Angel come down from Heaven, clothed with a cloud; and a rainbow was upon his head, and his face was as it were a sun, and his feet as pillars of fire. And he had in his hand a little book.'

"A little book, a little book—could words be modester? Yet how stupendous its importance! Do you know what that book was?"

"Was it—"

"I hold it in my hand,—Christian Science."

"Hear our Founder's eloquent words: 'Then will a voice from heaven cry, go and take the little book; take it and eat it up, and it shall make thy stomach bitter; but it shall be in thy mouth sweet as honey.'

"Mortal, obey the Heavenly Evangel. Take up Divine Science. Read it from beginning to end. Study it. Ponder it. It will be indeed sweet at its first taste, when it heals you; but murmur not over Truth, if you find its digestion bitter. You now know the history of our dear and holy science, sir, and that its origin is not of this earth, but only its discovery. I will leave the book with you and go now; but give yourself no uneasiness—I will give you absent treatment from now until I go to bed."

Under the powerful influence of the near treatment and the absent treatment together, my bones

were gradually retreating inward and disappearing from view, and gradually my body was made to accommodate the process of restoration. Every minute or two I heard a dull click inside and knew that the two ends of a fracture had been successfully joined. This muffled clicking continued for some three hours and then stopped—the connections had all been made. All except dislocations, there were seven of these; hips, shoulders, knees, neck, etc., so that was soon over; one after another they slipped into their sockets with a sound like pulling a distant cork, and I jumped up as good as new, as to framework, and sent for the horse-doctor.

I was obliged to do this because I had a cold in the head and a stomach-ache, and was not willing to trust these things any longer in the hands of one whom I did not know and who had not given these troubles a shade of relief; indeed they were getting worse.

The horse-doctor came, a pleasant man full of hope and professional interest in the case. In the matter of smell he was quite odoriferous, and on that account I tried to arrange with him for absent treatment. He examined my teeth and said my age and general condition were favorable to energetic measures, therefore he would give me something to turn the stomach-ache into the bots, and the cold in the head into blind-staggers, then he would be on his own beat, and would know what to do. He made up a bucket of

bran mash, and instructed me to take a dipperful every two hours, alternated with another preparation containing turpentine and axle-grease. He stated that my ailments would disappear in twenty-four hours, and so interested me in other ways as to make me forget they were on the premises.

I took up the Christian Scientist's book and read half of it, then took a dipperful of bran mash, and read the other half. The resulting experience was full of interest and adventure. All through the grumblings and grindings and quakings and effervescings accompanying the evolution of the ache into botts, and the cold into blind staggers, I could note the generous struggle for mastery going on between the bran mash, the other medicine and the literature, and often I could tell which was ahead, and could easily distinguish the literature from the others, when the others were separate, though not when they were mixed, for when a bran mash and an eclectic drench are mixed together they look just like the apodictical principle, out on a lark, and no one can tell it from that. The finish was reached at last, the evolutions were complete and a fine success, but I think that these results could have been obtained with fewer materials. I believe the mash was necessary to the conversion of the stomach-ache into botts, but I think one could develop the blind-staggers out of the literature itself, also that blind-staggers produced in this way would be of a better quality and more lasting

than any produced by the artificial process of a horse-doctor.

For of all strange, and frantic, and incomprehensible, and uninterpretable books, which the imagination of man has created, surely this one is the prize sample. It is written with a limitless confidence and complacency, and with a dash and stir, and earnestness, which often compel the effects of eloquence, even when the words do not seem to have any traceable meaning. There are plenty of people who imagine they understand the book. I know this for I have talked with them, but in all cases they were people who pretended to believe that there was no such thing as pain, sickness, and death, and no realities in the world, nothing actually existed but mind. To me this seems to modify the value of their testimony. When these people talk about Christian Science they do as did the lady who doctored me, they do not use their own language, but the book's; they pour out the book's showy incoherence, and leave you to find out later that they were not originating but merely quoting. They seem to know the volume by heart, and to revere it as they would a Bible. Plainly the book was written under the mental dislocations of the Third Degree, and I feel sure that none but the membership of that Degree can discover meanings in it. When you read it you seem to be listening to a lively and aggressive and oracular speech delivered in an unknown tongue, a speech

whose spirit you get but not the particulars; or, to change the figure, you seem to be listening to a vigorous instrument which is making a noise which it thinks is a tune, but which to persons not members of the band is only the martial tooting of a trombone, and merely stirs the soul through the noise but does not convey a meaning.

The book's serenities of self-satisfaction do almost smack of a heavenly origin—more especially as they have no blood kin on the earth. It is more than human to be so placidly certain of things, and so finely superior, and so airily content with one's performance. Without ever presenting anything which may rightly be called by the strong name of Evidence, and sometimes without even mentioning a reason for a deduction at all, it thunders out the startling words: "I have proved" so and so. It takes the Pope and all the great guns of his church in battery assembled, to authoritatively settle and establish the meaning of a single and sole unclarified passage of Scripture, and this at vast cost of time, study and reflection; but the author of this work is superior to all that. She finds the whole book in an unclarified condition, and at small expense of time and no expense of mental effort she clarifies it from lid to lid, reorganizes and improves the meanings, then authoritatively settles and establishes them with formulas which you cannot tell from "Let there be light!" and "Here you

have it!" It is the first time since the dawn-days of Creation that a voice has gone crashing through space with such placid and complacent confidence and command."

Then follows the question of authorship of Mrs. Eddy's book, in which it is claimed that Mrs. Eddy did not write the book which she is credited with writing.

Under division five Mark Twain gives us some true history regarding faith-cures: No one doubts—certainly not I—that the mind exercises a powerful influence over the body. From the beginning of time, the sorcerer, the interpreter of dreams, the fortune-teller, the charlatan, the quack, the wild medicine man, the educated physician, the mesmerist and the hypnotist, have made use of the client's imagination to help them in their work. They have all recognized the potency and availability of that force. Physicians cure many patients with a bread pill; they know that when the disease is only a fancy, the patient's confidence in the doctor will make the bread pill effective.

Faith in the doctor! Perhaps that is the entire thing. It seems to look like it. In old times the king cured the king's evil (once popularly applied to scrofula) as it was thought it could be cured by a touch of the royal hand. He frequently made extraordinary cures. Could his footman have done it? No, not in his own clothes. Dis-

guised as the king, could he have done it? I think we may not doubt it.

I think we may feel sure that it was not the king's touch that made the cure in any instance, but the patient's faith in the efficacy of a king's touch. Genuine and remarkable cures have been achieved through contact with the relics of a saint. Is it not likely that any other bones would have done as well if the substitution had been concealed from the patient?

When I was a boy, a farmer's wife who lived five miles from our village had great fame as a faith-doctor—that was what she called herself. Sufferers came to her from all around; and she laid her hand upon them and said: "Have faith. It is all that is necessary," and they went away well of their ailments. She was not a religious woman and pretended to no concealed occult powers. She said that the patient's faith in her did the work. Several times I saw her make imediate cures of severe tooth-ache. My mother was the patient.

In Austria there is a peasant who drives a great trade in this sort of industry and has both high and low for patients. He gets into prison every now and then for practising without a diploma, but his business is as brisk as ever when he gets out, for his work is unquestionably successful and keeps his reputation high.

In Bavaria there is a man who performed so many great cures that he had to retire from his

profession of stage-carpentering, in order to meet the demand of his constantly increasing body of customers. He goes on from year to year doing his miracles; and has become very rich. He pretends to no religious helps, no supernatural aids, but thinks there is something in his make-up which inspires the confidence of his patients, and that it is this confidence which does the work and not some mysterious power issuing from himself.

Within the last quarter of a century in America, several sects of curers have appeared under various names, and have done notable things in the way of healing ailments without the use of medicines. There are the Mind-Cure, the Faith-Cure, the Prayer-Cure, the Mental-Science Cure; and apparently they all do their miracles with the same old powerful instrument—the patient's imagination. Differing names, but no difference in the process. But they do not give that instrument the credit; each sect claims that its way differs from the ways of others.

They achieve some cures, there is no question about it; and the Faith-Cure and the Prayer-Cure probably do no harm when they do no good, since they do not forbid the patient to help out the cure with medicines if he wants to, but the others bar medicine and claim ability to cure every conceivable human ailment through the application of their mental forces alone. They claim ability to cure malignant cancer and other

affections which have never been cured in the history of the race. There would seem to be an element of danger here. It has the look of claiming too much. Public confidence would probably be increased if less were claimed. It might be shown that all the "mind-sects," except Christian Science, have lucid intervals, in which they betray some diffidence, and in effect confess that they are not the equal of the Deity; but if the Christian Scientist even stops with being merely the equal of the Deity, it is not clearly provable by his Christian-Science-amended Bible. In the usual Bible the Deity recognizes pain, disease and death as facts, but the Christian Scientist knows better, and is not diffident about saying so.

The Christian Scientist was not able to cure my stomach-ache and my cold, but the horse-doctor did it. This convinces me that Christian Scientists claim too much. In my opinion it ought to let diseases alone and confine itself to surgery. There it would have everything its own way. The horse-doctor charged me thirty-three kreutzers, and I paid him; in fact, I doubled it and gave him a shilling. Mrs. Fuller brought in an itemized bill for a crate of broken bones, mended in two hundred and thirty-four places, one dollar per fracture. "Nothing exists but mind." "Nothing," she answered, "All else is substanceless, all else is imaginary." I gave her an imaginary check, and now she is suing me for substantial dollars. It looks inconsistent."

The experience of Mark Twain may or may not have suggested the following, yet the thought expressed seems to correspond so well with the experience of this popular writer, that it is given here.

"Give me something to ease me; don't sit there
and stare!
Bring a mule in to kick me; put a knife to my
throat.
Get a battering ram or an old billy-goat,
And batter my brains out; get a threshing ma-
chine
And thresh this thing out of my liver and spleen.
Do any old thing in the world and be quick.
Get up and do something; I tell you I'm sick!"
Then she opened her eyes and half-pouting lips
And smiled like the sun coming out of eclipse.
And she murmured and twittered in sweet win-
ning ways,
Pinning roses of rhetoric onto each phrase.
'Till, at last, quite confounded, I lay back and
had
A horrid suspicion—The woman was mad!
For she rolled on in speech like the waves of the
sea,
And hurled the whole body of doctrine at me,
And wound up by saying "There's nothing but
tho't,
When you think you are sick, it is proof you are
not.
A little reflection will make it all plain;

That no man or woman can ever have pain;
It's a myth and delusion, a trick of your tho't,
When you think you have pain, it is proof you have not.
It is only depravity thwarting the truth,
Planting tares in the garden and highway of youth,
Coming back to first principles, now don't you see,
There is nothing but tho't? And that tho't makes us free.
As free as the light, which is only a tho't,
For light is so gross that you know it is not.
The Immanent soul takes cognition, you see,
And the Eminent goes, and those two tho'ts agree.
So the reason is plain, and, it needs but a word
To show that your notion of pain is absurd.
To prove it, I'll hold you in tho't for a spell,
And your notion will vanish, and all will be well."
When she rose, she looked round and said "Hold to that tho't,
When you think you are sick, it is proof you are not."
Reattired, she stood for a moment or two,
Looking off into space—then without more ado
Shook her feathers and walked to the half-open door,
And paused on the threshold to tell me once more:

"You think you are sick, but you see you are not.
Just keep that in mind and just hold to the tho't."
Her steps died away and I heard them no more,
But the bar-tender came and looked in at the door,
And bowing profoundly he said with a wink,—
"When I has the colic, I takes a big drink.
A big horn of brandy, or a hot whisky-stew,
Is about the right thing, I'm thinking, for you."
He brought me a pitcher of hot, steaming stuff,
And said there was more, if that wasn't enough.
And I filled myself up on the hell-broth he brought,
And have always rejoiced at the miracle wrought.
Next day I received from the doctor a note,
With a bill for ten dollars; and sat down and wrote:
"Tit for tat is a maxim as old as the sphinx;
I am quite well to-day, but I paid for the drinks.
Yet still I am mindful of all that you said
As you talked me to death on a pain-tortured bed.
And what you there told me, of course, must be true,
So I hand your philosophy all back to you;
If I was not sick, there was nothing to cure,
And that being so—then the fact is dead sure
Your bill is a humbug; there is nothing but tho't.
When you think you want money, it's proof you do not."

The following quotations are from "Christian

Science," by William A. Purrington, lecturer in the University and Bellevue Hospital Medical College, one of the authors of "A System of Legal Medicine," etc., etc. The quotations are brief, therefore do not do justice to Mr. Purrington's book.

"Beyond doubt there are very honest, intelligent, cultivated persons who believe in the efficacy of Christian Science and faith cure. Among some twenty cases of deaths under such treatment, including cases of contagious diseases, the writer has noticed the names of such persons. It is equally true that some 'intelligent persons' find no 'fad' too extraordinary for adoption. The writer knew of a shrewd and cultivated woman who consulted in Sing Sing prison as to investments in stocks an 'astrologer' convicted not only of illegal medical practice, but of abhorrent crime. It is said that where Voudooism prevails, cultivated persons consult its priestesses, after the fashion of Nicodemus. And when St. John Long, prince of quacks, was convicted of manslaughter, among the twenty-nine patients who testified to the excellence of his treatment were divers 'ladies of quality' headed by the Marchioness of Ormond, than whom, save royalty, only a duchess could be better able to form a sound opinion in such case.

"What is Christian Science? The answer may, best and most fairly, be given by quoting the very words of the remarkable lady, Mrs. Eddy, who, in

1886, made the somewhat belated discovery of this branch of healing. This is the more important because many who, without having read the text-book, fancy they know, in a general way, what it teaches, would be surprised, on looking into the volume, at the vagueness of expression, hopeless confusion of thought, vain boasting, complacent assertion of impossible occurrences, virulent denunciation of all other systems, and systematic, commonplace advertising that everywhere appear. The publications to be quoted from are 'Science and Health, with Key to the Scriptures' and 'Miscellaneous Writings, 1883-1896.' The former, being the text-book wherein the new discovery is expounded, is read at the church service of the Scientist alternately with the Bible, and, if its author is to be credited, the mere reading of it, understandingly, has cured and will cure the most malignant diseases, even cancer, and indeed is the chief factor in all treatment.

"At the threshold of this *magnum opus,* we are told: 'The time for thinkers has come.' Hitherto, the world has got along in a thoughtless fashion; but at last the thinkers are upon us—not only those who think they think, but real thinkers; and it behooves us to heed their thought.

"The most that can be made of her theory is that disease does not exist save as a false belief to be treated with argument; and the positive treatment of it is as follows: First of all, buy Mrs.

Eddy's books and have the patient do so. This will increase the circulation—of the book, if not of the patient. Next, deny that there is any disease, and make the patient agree with you. Remember that all is mind and there is no matter. You are only seeing or feeling a belief, whether it be cancer, deformity, consumption, or fracture that you deal with. Having thus established that the disease does not exist, you next proceed to meet the incipient stage of disease with such powerful eloquence as a Congressman would employ to defeat an inhuman law! No disease can stand that. Still more oddly, you are not to call this disease, whose existence you deny, by name, but mentally, lest if the patient hearing its name, his mortal mind will hold on to the disease; for, apparently, the mortal mind, which itself has no existence, although impressed by absent treatment and the reading of Mrs. Eddy's book, cannot let go any disease whose name is spoken out loud. But if you only address the disease mentally and speak the truth to it, 'tumors, ulcers, tubercles, inflammation, pains and deformed backs * * * all dream shadows, dark images of mortal thought, will flee before the light.' To the practical mind it would seem that the 'healer' would need some medical knowledge to make his differential diagnosis of 'ulcers' and 'tumors,' and to distinguish between abscess, aneurism, and other abnormal conditions. And if disease does not exist, and has no intelligence to move or change

itself, it does seem a bad waste of time to have any discussion at all with it.

"Who and what is Mrs. Mary Moss Baker Glover Patterson Eddy, who in 1866, threw light upon the gospels for lack of which saints, sages and poets, stumbling in darkness through the ages, have failed to apprehend the Saviour's teachings.

"An apostle worthy of the name should have a somewhat extraordinary childhood, and Mrs. Eddy writes:

" 'For some twelve months, when I was about eight years old, I repeatedly heard a voice calling me distinctly by name three times in an ascending scale.'

" 'When the call came again I answered in the words of Samuel, but never again to material senses was that mysterious call audibly repeated.

" 'My father was taught that my brain was too large for my body, and so kept me much out of school, but I gained book learning with far less labor than is usually requisite. *After my discovery of Christian Science, most of the knowledge I had gleaned from school books vanished like a dream.*

" 'The Scripture gave no direct interpretation of the scientific basis for demonstrating the spiritual Principle of healing, until our Heavenly Father saw fit, through the 'Key to the Scriptures,' in 'Science and Health,' to unlock this mystery of godliness.'

"Regarding her Metaphysical College, Mrs. Mary Baker G. Eddy says: 'When God impelled me to set a price on my instruction in Christian Science Mind-healing, I could think of no financial equivalent for an impartation of a knowledge of that divine power which heals; but I was led to name three hundred dollars as the price for each pupil in one course of lessons at my college—a startling sum for tuition lasting barely three weeks. This amount greatly troubled me. I shrank from asking it, but was finally led, by a strange Providence to accept this fee.'

"Again she says: 'I recommend students not to read so-called scientific works, antagonistic to Christian Science, which advocate materialistic systems; because such works and words becloud the right sense of Metaphysical Science.'

"Having thus impressed the duty of ignorance upon her disciples, she dubbed them, within three weeks or less, in consideration of the fee of $300, doctors of Christian Science, and bade them treat all diseases. The price was cheap enough. Buchanan's notorious college offered no easier terms.

"In order that her students might 'enter the field of labor beneficially to themselves,' the shrewd Mother thus taught:

"'*Christian Science demonstrates that the patient who pays whatever he is able to pay for being healed is more apt to recover than he who withholds a slight equivalent for health.*'

"And yet these people deny in Court, when arraigned for unlawful practice of medicine and manslaughter, that they demand fees for their services!

"'In the early history of Christian Science,' says Mrs. Eddy, 'among my thousands of students few were wealthy. Now Christian Scientists are not indigent; and *their comfortable fortunes are acquired by healing mankind, morally, physically, spiritually.*'

"Mrs. Eddy adopts, in that part of 'Miscellaneous Writings,' devoted to advertising her business, a clear type so remarkably like that of another famous lady of Lynn that it has caused her to be called 'the Lydia Pinkham of the Soul.'

"The ordinary quack is content to lay claim to some special skill or knowledge in the use of natural methods or remedies. Thus, in February, 1806, one John M. Crouse induced the Legislature of New York that in the following April chartered the existing county and State medical societies to authorize by special act the purchase for $1,000 and publication in the State papers of his 'perfect and infallible remedy and cure for hydrophobia or canine madness.' And a wonderful remedy it was. Here is the prescription, and it certainly seems adequate to put an end to hydrophobia or any other malady:

"'First: Take one ounce of the jawbone of a dog, burned and pulverized, or pounded to fine dust.

" 'Secondly: Take the false tongue of a newly foaled colt, let that be also pulverized; and,

" 'Thirdly: Take one scruple of verdigris, which is raised on the surface of old copper by I, or II, are the purest and best. Mix these in- laying it in the moist earth; the coppers of George gredients together and if the person be an adult or full grown, take one common teaspoonful a day, and so in proportion to age. In one hour after take the filings of the one-half of a copper of the above kind, if to be had; if not, then a small increased quantity of any baser metal of the kind; this to be taken in a small quantity of water.

"The next morning, fasting (or before eating), repeat the same as before. This, if complied with after the biting of a dog, and before the symptoms of madness, will effectually prevent any appearance of disorder; but after the symptoms shall appear a physician must immediately be applied to, to administer the following: Three drachms of the verdigris of the kind before mentioned, mixed with half an ounce of calomel, to be taken at one dose. This quantity the physician need not fear to administer, as the reaction of the venom will then diffuse through the whole system of the patient, neutralize considerably the powerful quality of the medicine; and,

" 'Secondly: If in four hours thereafter the patient is not completely relieved, administer four grains of pure opium or one hundred and twenty drops of liquid laudanum. JOHN M. CROUSE.

"In the following year an act was passed prohibiting unlicensed practice of medicine, with the proviso, however, that it should not be construed to debar any one from using, or applying for the benefit of the sick, roots or herbs the growth or product of the United States, etc.

"This system, once as popular as Christian Science, furnished the leading American case on manslaughter by medical malpractice. It there appeared that Samuel Thomson, founder of the system, undertook to cure 'all fevers, whether black, grey, green, or yellow.' His staple remedies were 'coffee,' so-called, 'gristle' and 'ram-cats.' Being summoned on Jan. 2, 1809, to attend Ezra Lovett, ill of 'a cold,' he ordered a fire built, put Lovett's feet on a stove of hot coals, wrapped him in a blanket, and, with a powder given in water 'puked' him—to use the simple language of the day—violently thrice within half an hour, meantime administering copiously the warm 'coffee.' He then put Lovett to bed, and sweated and 'puked' him pretty steadily for three days, the patient growing weaker and weaker, until, poor soul! he could puke no more. Then Thomson asked 'how far down the medicine had got,' and, Lovett indicating his chest, the quack said that the medicine 'would soon get down and unscrew the disease.' On the third day the patient 'lost his mind and went into convulsions,' which condition lasted until the eighth day, Jan. 10, when he died.

"While the ordinary quack, who, as has been said, pretends only to extraordinary human skill or knowledge, is, therefore, generally held to be a practitioner of medicine, Christian Scientists, who go further and pretend to procure for lucre divine intervention by their prayers, contend that in thus offering to heal the sick, although for hire, they are not practicing medicine, but observing religious rites, and are therefore protected in their practices by constitutional safeguards.

"As nearly as one can spell it out, this key, which, for purposes of lucre, Mrs. Eddy has copyrighted, is the stale theory, as old as philosophic speculation, familiar to Sophomores but new to her, that everything is Mind. Her corollary is that health is right thought, and disease, sickness and every other evil only wrong thought. Upon this theme, she rings her changes; and it is safe to say, that had she confined herself to this peculiar exposition of Scripture, her congregations would have been small, and she would have remained an obscure eccentric New England woman, confessedly feeble in health and poor in pocket.

"Diagnosis, as physicians and ordinary laymen understand the term, does not exist in Mrs. Eddy's scheme. Under this principle it is quite unnecessary for the healer to come in contact with the patient. The one may be in Hong Kong, the other in Terra del Fuego. The effect will be

just as great as if they were in conjunction. Now while as a theory, this arrant nonsense is merely comical, a moment's reflection shows that its practice is obviously dangerous in a high degree, not only to the particular victim but to the community at large. That its promulgator is either dishonest in advancing it or doubtful of its full efficacy, seems apparent from her advice to disciples to 'leave the adjustment of broken bones and dislocations to the fingers of a surgeon, until the advancing age admits the efficacy and supremacy of Mind.'

"Is not this advice of hers the cunning of the fox rather than a delusion of the other animal? Is it not manifestly a warning that while it is comparatively safe for her ignorant followers to treat the sick for rich reward, under the guise of religious aid, in cases of ordinary ailments, yet surgery is to be shunned by them, only because in that department of medicine, malpractice is more demonstrable to a lay jury than in physic, where the healing force of nature may be relied upon to give the Christianly scientific practitioner success in many cases, while his failures are more likely to escape detection?

"Let us concede, for argument's sake, what the Eddyites vehemently declare, that if a man be willing to subject himself to the treatment of Christian Science for any sickness, even smallpox, he should be allowed to do so; are we also to concede that he should be allowed to subject

his infant children afflicted with that malady or scarlet fever, or malignant diphtheria to the same and no other treatment? Is he to be suffered to sacrifice his own offspring and also spread contagion? Common sense affords the answer.

"Let us concede to the powers of suggestion all that is established and far more. Let us admit for the argument's sake, if not in fact, that even cancer may be cured, by convincing the patient that there is no such disease and that he is not afflicted with it; still we are not up with Mrs. Eddy. For that astounding person distinctly says that the healer must not name the disease, but must argue with it mentally; that her methods are as efficacious for infants, in whose minds such suggestion cannot be planted, as for adults; that oceans may roll between the healer and patient, cutting off communication and therefore suggestion by any means that human science as yet admits to be possible. Thus she seems to eliminate from her theory the only grain of truth we have found in it, and deny the very cause that produces the results which follow its application in the restoration of the sick to the normal.

"Let us illustrate, with a few examples, just what Christian Science demands the right to do ignorantly, and what its opponents say should only be attempted with knowledge and skill.

"How horrible it is to imagine a case of *placenta praevia*, or an abnormal presentation in the hands of these mad people who pretend that the

mere reading of Mrs. Eddy's book of jargon fits the reader to take care of any case of sickness or obstetrics! Is it much if anything short of murder for an Eddyite, taught only by the contents of that dreary book to attend such cases as those supposed? Again, a child swallows poison; then there is a possibility—a probability—it may be a certainty—that competent medical aid seasonably called in will save the child: what is to be thought of the parent who calls in the ignorant Christian Scientist, what of the latter who mentally argues with the symptoms of poisoning that he cannot recognize and excludes the necessary and efficient aid? Is he not a manslaughterer, nay a murderer? Once more, a case of smallpox, malignant diphtheria, or scarlet fever breaks out in a tenement house full of children; medical aid being called may cure it, or, at all events, recognizing the disease, may isolate the patient, disinfect the premises and stop the spread of contagion. The Christian Scientist comes, in his crass ignorance denies that there is any disease present and sits down in solemn madness to argue with what he calls an erroneous belief of mortal mind —the contagion spreads and there is a new slaughter of innocents. Is not the so-called scientist a pest, and should he not be incarcerated in a prison or a madhouse where the community may be safe from him in the future?

"Mrs. Eddy, as was fully pointed out in the *North American Review* for March, condemns

not only drugs, remedies and instruments, but even hygiene, exercise and bathing. Her method of curing disease is first to deny its existence and then to argue with it as one would argue with a Congressman.

Under the heading "Its Legal Aspect" Mr. Purrington says:

"No statute can cure an adult of folly. Laws specifically forbidding the practice of Christian Science would only provide that cheap martyrdom which would be welcomed by an advertising business and would be wrong, both in principle and policy. The delusion itself is bound to die, as did that of John of Leyden and many another, before and since that prophet's time; and it is quite certain to be succeeded by others.

"In New York City about 1832, a period of great awakening that begat Mormonism and many other sects—among them one in Kentucky, whose members in order to win Heaven by making themselves as little children, used to crawl on their hands and knees in church, play marbles, trundle hoops and otherwise manifest their infantile madness—one Matthew, a carpenter, having assumed the name Matthias, proclaimed himself to be God, the Father. He found believers ignorant and intelligent, procured much money and ruined many persons. He and his disciples claimed to heal the sick quite as successfully as the Scientists now do. Matthias was eventually indicted, etc. The District Attorney claimed that

to maintain the indictment he must prove the defendants were false and would deceive a man of ordinary intelligence and prudence, but no sane person would believe Matthias was God, nor can I establish the falsity of his statement by legal evidence.

"The memory of the adventuress, Diss de Bar, is fresh. In 1888 she was convicted by a New York jury of fraud in obtaining money from a lawyer of admittedly large attainments. She, too, sought to cloud the real issue by claiming that the right to believe in spiritualism was involved. During her trial the usual train of 'ladies' and 'intelligent persons' attended her, one of her satellites being a former diplomat and an ex-regent of the university of the State.

"That Christian Scientists frequently offend against the criminal law seems to be clear, and their prosecution in such cases would be of value if it enlightened the public as to their real teaching; for it seems scarcely possible that an intelligent person becoming fully acquainted with 'Science and Health' and its teaching, could fail to visit Mrs. Eddy's cult with condemnation as strong as that which she unsparingly lays on competing cults of faith curers, mind curers, animal magnetists and clairvoyants, or that any one of taste and humor, after reading the 'poems' and quack advertisements of the 'Miscellaneous Writings' would not blush to confess himself a

disciple of the new thought. Publicity will destroy the cult far more quickly than legislation."

The first great trouble which surrounds the Christian Scientists is their lack of knowledge of cause and effect. They do not understand the rationale of their own treatment, and by her denial of matter Mrs. Eddy is the greatest stumbling-block of all. It is remarkable but true that people can always be found who will believe any foolish thing you tell them, and it seems sometimes that the more improbable the statement the more readily do they believe it. Credulity is as old as humanity. It appears to be fed by an inexhaustible supply of ignorance and superstition from within. Anything that is marvelous, miraculous, extraordinary or impossible, appeals to the unthinking mind with a force difficult to understand. Perhaps the attraction resides in the contrast between these pretentious and unreal mysteries, and the hard, narrow, practical lives of those who believe, and their ignorance allows them to accept the illusion.

What is called Christian Science is not new, though many people may suppose it is. Faith has existed since the first time the human mind was influenced by thought, or suggestion from another. Suggestion is as old as the human race. Undoubtedly there are many intelligent people who believe in faith-cures. They have been informed, upon what they consider good authority, that certain miraculous cures had been made,

later other evidence of cures came to their mind, and gradually they began to believe the claims were true.

And they are true, for many cures are effected through faith; yet when we see superstitious healers treating the sick, we become disgusted and forget that the cure is effected by establishing confidence in the mind of the patient, and that even in their superstition, the healers may be able to establish this confidence. Some, whose faith is very strong, are cured at once and it becomes blasphemous for them to worry any more, and they go about their work comforted and strengthened in the blissful belief that a special providence has been detailed to watch over them and administer to their needs. It is only suggestion, of course, but this suggestion strengthens the mind's influence over the body, and in many cases that is all that is needed.

This is true, and it is useless to unite against the healers or try to make laws to punish them. That will only advertise them, throw a halo of martyrdom around them and they are successfull enough without it. Better learn the secret of their success, separate it from the ignorance and superstition which surrounds it, impart to it the knowledge obtained by higher education and broader culture, and use it as one more weapon or means with which to combat human suffering.

Every disease produces its own peculiar con

dition of mind, and to cure the mind often cures the disease. When some healer—and healer—throws the veil of illusion over the hard, grim realities of life, it is good sense to believe that a cure is more easily effected. We can think ourselves into a state of subjective disease by brooding over the subject. The key to disease may often be found in our habits. Habit controls and regulates our being to a remarkable extent. Physical habits influence the mind, and the mind reacts upon the body. Mental culture will increase bodily resistance. Correct habits and a healthy mental attitude toward the world in general, is a powerful aid in overcoming the minor cures and ills. A healthy mental attitude results in a vigorous brain, and a vigorous brain scarcely observes the minor problems of life, but disposes of them mechanically. If a brain has been weakened, debilitated, or atrophied from inertia, or narrowed from monotonous routine, its activity is crippled and the whole organism suffers, the general physical tone is lowered and the want of harmony easily develops into disease.

Now if confidence can be restored and the mind brought back to its normal force, it will be a powerful aid in the return to health, and this is what the healers attempt to do. They do not give medicine to a tortured mind, but endeavor to stimulate faith and hope; this gives energy and ambition, every fiber possesses greater possibilities, this increases the digestive powers,

stimulates nutrition, increases the physical force, the mental faculties are strengthened, ambition returns, and the man begins to be himself again. The man does not possess any more power to overcome disease or to maintain health than he did before he was treated by the healer, he is simply using the power he already possessed. That power is the mind. Through the influence of the healer the mind has been stimulated to action, has been developed and improved, has been educated in self-control, just as it has been or may be in mathematics or chemistry, though not by the same power of reasoning. There is nothing strange or wonderful about mind-cures, unless we call the mind wonderful, but the man possessed the mind before he saw the healer.

Mrs. Eddy claims to reduce dislocation by faith. It is quite probable that Mrs. Eddy does not know the difference between a bruise or sprain and a dislocation, and perhaps the greatest prejudice against her and her subhealers is caused by their ignorance regarding human anatomy. Yet with many this does not lessen the power of suggestion. If the power of suggestion were better understood its good effects might be increased and its evils guarded against.

The Christian Scientists claim to receive divine aid, that the Divine Ruler delegates to them a special power to care for each individual case. That is superstition. These cures can all be accounted for on a natural basis. Many people

have known the sight of the forceps to stop tooth-ache for a time. No one claims that such an experience was the result of spirits or Divine interference. Many old soldiers remember imaginary injuries in some battle. They thought they were shot, they could feel the blood trickling from the wound, while a supposedly injured arm or foot lay helpless until they discovered their mistake. No one claims that these experiences were the result of spirits or Divine interference. It was only the influence of mind over body.

Every organ or part of the body has a corresponding brain-center, i. e., certain parts of the brain control certain organs or parts of the body, and when the organ or part is diseased or injured, complaint is sent to that part of the brain which controls. So also, when a part of the brain is diseased or disturbed, and while the organ which that part of the brain controls may show no signs of ailment, yet pain will be referred to it. To illustrate, a man who has had a foot amputated still imagines the foot pains him, because that part of the brain which controlled the foot has been irritated by disease or accident, and also by the amputation, and cannot be quieted until it has become accustomed to the change, or until it atrophies (shrinks.) This happens frequently, and fills the minds of some with fear, yet no one claims that these experiences are the results of spirits or Divine interference. All understand it is imagination.

Certain circumstances or conditions produce certain beliefs and sometimes this belief controls our actions to a remarkable extent as stated. We can and sometimes do think ourselves into a state of subjective disease. After certain manipulations we think we are well. The soldier thought he was shot, then that he was not. The man thought his amputated foot pained him, then he thought it did not.

William Osler, M. D., F. R. S., Professor of Medicine in the Johns Hopkins University and a recognized authority, says: "After all, faith is the great lever of life. Without it man could do nothing; with it, even with a fragment, as a grain of mustard seed, all things are possible to him. Faith in us, faith in our drugs and methods is the great stock in trade of the profession. In one pan of the balance put the pharmacopœas of the world, all the editions from Dioscorides to the last issue of the United States Dispensatory, heap them on the scales as did Euripides his books in the celebrated contest in the Frogs; in the other put the simple faith with which from the days of the Pharaohs until now the children of men have swallowed the mixtures these works describe, and the bulky volumes will kick the beam.

"It is the aurum potabile, the touchstone of success in medicine. As Galen says, 'confidence and hope do more good than physics—he cures

most in whom most are confident.' Faith in the gods or in the saints cures one, faith in little pills another, hypnotic suggestion a third, faith in a plain country doctor a fourth. In all ages the prayer of faith has healed the sick, and the mental attitude of the suppliant seems to be of more consequence than the power to which the prayer is addressed. The cures in the temple of Esculapius (the god of medicine,) the miracles of the saints, the remarkable cures of those noble men, the Jesuit missionaries, in this country, the modern miracles at Lourdes and at St. Anne de Beaupre in Quebec, and the wonder-workings of the so-called Christian Science, are often genuine and must be considered in discussing the foundation of therapeutics. We physicians use the same power every day. If a poor lass, paralyzed apparently, helpless, bed-ridden for years, comes to me, having worn out in mind, body, and estate, a devoted family; if she in a few weeks or less by faith in me, and faith alone, takes up her bed and walks, the saints of old could not have done more.

"One mode of faith healing in modern days, which passes under the name of 'Christian Science,' is probably nothing more than mental suggestion under another name."

The Christian Scientists, the Faith-Healers, Mind-Healers, Prayer-Healers, Spirit-Healers, Natural-Healers, the Mesmerist, Hypnotist,

Spiritualist, the layer on of hands, and the Indian Medicine-man, can and will cure some diseases as long as they produce dominant ruling impressions.

We all understand that in any kind of sickness or disease, where the patient is hopeful, the prospects of recovery are greatly increased. If the patient is discouraged and despondent, the case is more grave, and it is good sense to believe that in many cases such despondency is directly responsible for a fatal termination. If the patient has a confidence, a belief that he is going to get well, such belief stimulates the mind, which reacts upon the body, increasing the energies, the vital powers are strengthened, and there results a determination that wields a powerful influence in checking disease. Every doctor understands the advantage of having a cheerful nurse to attend his patients, understands the advantage of being cheerful himself while in the presence of the sick, understands that if his patient has confidence in him he will be much more successful, because this confidence and hope stimulate the flagging energies, thus inducing the return to health. Here the doctor is working on the faith-cure plan, but the doctor works intelligently, works on the principle of cause and effect, he understands that every condition is the result of a natural cause, that every disease is the result of a natural cause, and that every cure is the result of a natural cause.

Under the heading "Suggestion in Medicine," a prominent doctor writes the *Medical Brief* of August, 1899, as follows: "I believe if every physician would pay more attention to suggestion, suggestive therapeutics, hypnotism, hypnotic therapeutics, or call it what you will, there would be less room for Christian Scientists, Magnetic Healers, Faith-Curists, and various other fads. It all comes under the head of Hypnotism, or more properly speaking, suggestive therapeutics. I believe this science should be taught in medical colleges. Some of our post-graduate schools are beginning to recognize its utility, and have established chairs for its teaching.

"Every physician should either read some good book on the subject, or take a post-graduate course where it is taught. I have found it of wonderful benefit to me in treating some nervous diseases, and especially so in giving treatment for the morphine and opium habits. The influence of the subjective mind is undoubtedly a great factor in treating any of the habits," etc.

Many will be surprised to know that our leading medical colleges teach what the doctor very properly calls "Suggestive Therapeutics." Suggestive therapeutics means curing or trying to cure disease by influencing the mind. Again the *Medical Brief* says editorially in the September number, 1899, "Not long ago an institute giving what is called 'Absent treatment' to sick applicants, was investigated by the United States au-

thorities on a charge of fraud. The result of the investigation showed that sixty-seven per cent of those treated declared themselves cured, or much benefited. Thirty per cent had received some relief, and only three per cent were in no way benefited by the treatment."

Such statements were voluntary and must set people to thinking. These people say they were benefited through the power of suggestion. Suggestion is gradually modifying the theory and practice of medicine.

Suggestion and Faith-Cure are the same. Suggestion is practised by many physicians. Every doctor of experience understands perfectly well the benefits of a "placebo." This is some harmless remedy, as bread pills or colored water, given to please a sensitive mind. Some physicians strive by other means to influence the minds of their patients. Others influence the mind unconsciously; their presence alone establishes a confidence which medicine cannot give. Others are cured by prayer. The attitude of the healer, the earnest supplication of those who ask for Divine deliverance, establishes in the mind of the sufferer a belief that he is going to get well, and in some cases this belief acts so powerfully that the patients leave the sick-bed at once, and mingle with their friends. These are exhibitions of the mind's influence over the body. Perhaps many of these cases present no organic lesion, or if such lesion is present it might render the individual discour-

aged and despondent. This would greatly increase the subjective symptoms, and the patient would seem to be much worse than he really was. In such cases the healer would have the same opportunity to arouse the latent energies, restore the equilibrium, and cure the despondency, and the patient would be much improved.

Can the healers cure organic disease? That depends upon how far the disease has progressed. Hope will never remove connective tissue overgrowth, yet it may prevent its further development, and prevent other degenerative changes. Hope and a contented mind may do this through their influence over digestion and assimilation; these may be so improved as to repair much of the damage done. As evidence of the mind's influence over digestion, we all know that during or after a hearty meal certain thoughts or sights will not only check digestion, but in many cases there will be a reaction and the stomach empties itself at once. Everybody knows that laughter and good-will aid, and anger, revenge and jealousy hinder, digestion. In each case it is the result of the mind's influence over the body.

What seems wonderful to some is that the Christian Scientists can treat people from a distance. Yet a patient at a distance can be treated as successfully as one near by. Usually, perhaps always, the patients understand the day and hour they are to be treated, and their whole thought and attention is fixed upon the treatment. This

establishes the same confidence as though the healer were in the room. If the patients did not know the exact hour of treatment, their minds would be centered upon the subject all the time, and the result would be the same. If people would look at faith-cures from a rational standpoint they would find nothing wonderful or supernatural in the results.

Do the healers really cure so many diseases? No, nor the doctors either, for a careful gathering of the facts shows that only ten per cent of those who call a physician really need a doctor. This percentage is given out by some of our leading medical colleges. The ninety per cent need only such care and attention as they can administer themselves. A little thought along this line is all that is required. Restrict the amount and regulate the quality of the food, pay attention to elimination, etc. But suppose there is real need for a physician and one is called. This one is just out of college. He grasps his medicine-case and rushes forth. To what? The doctor himself would like to know to what. Oh, yes, besides his medicine-case he has a theory and a diploma. Has he ever seen a case like the one to which he is going? No.

Ever heard of one? May-be.

The patient would not have an Eclectic? No.

Nor a Homeopath? Never.

Nor a Healer? Not in a thousand years.

Some doctors when they see a patient know in-

tuitively what the trouble is, i. e., they understand without conscious thought or reasoning.

Does this doctor so understand? N-n-n-not exactly.

Is he in a hurry to see the patient? No, not in any very great hurry.

Is he afraid? Oh, my! no!

While in college did he study hard, and did he belong to a hospital class? Was the greater part of his instruction received in the hospital wards, at the bedside of the sick? Was such instruction given by competent demonstrators? No, you see it was this way: He did not have time for all these things, for he belonged to a football team, and had to keep his hair parted in the middle, go to the theatres, etc. Or he may have been some rich man's son, and after some industrious student had gained the necessary information, he could buy the student's notes, pass his examination and thus save time. Or, again, he may have spent most of his time in the bacteriological department, learning to say micrococcus pyogenes aureus, diplococcus intracellularis meningitidis, schizomycetes, actinomycosis, etc.

Can he apply such knowledge to the treatment of disease? No.

As a rule how long does the student remember his bacteriological teaching? About fifteen minutes.

Of what practical benefit is such knowledge? None.

And the patient would not have any other brand of doctor? No, because the others would not understand the case. Yet there is no doubt that in many cases some Healers, those who possess strong personalities, would do far more to arouse the patient and effect a cure.

Phantom tumors are perhaps among the best evidence of the mind's influence over the body. Many physicians have had experience with patients who believed they had a tumor. The seeming growth gradually became larger, until an operation was decided upon, but when the patient was placed upon the operating table and the chloroform given the tumor disappeared. This has happened in some of our best medical colleges, and was simply an example of the result of imagination. This imagination produced certain impressions upon that part of the brain controlling the region of the supposed tumor. These impressions acted as a stimulus to the nerves supplying the muscles around and over the phantom growth, and the muscles began to contract. With such contraction and enlargement the mind became still more affected, and the impression upon the brain more fixed. This in turn stimulated still more the nerve-supply, and thus the tumor grew. When under the influence of chloroform the system was completely relaxed, and the part returned to the normal. No one pretends that phantom tumors are the result of Divine interference.

The gold-cure for drunkenness is another evidence of the mind's influence over the body. It is stated that patients are given hypodermic injections of chloride of gold and sodium. The bright yellow color imparted by the chloride of gold makes a favorable impression upon the mind of the patient. Patients are given some tonic remedy to take by the stomach, and all the whisky they want to drink. That is not all, or most important. With the chloride of gold injection there is said to be added a small dose of apomorphine. This is an artificial product made from morphine. Apomorphine in full doses produces vomiting, but in these cases just enough is added to produce nausea, the patient feels sick, and thinks it is the chloride of gold changing his appetite. Sometimes instead of using the apomorphine, tartar emetic is added direct to the whisky, This will also produce a feeling of sickness. The more whisky the patient drinks the sicker he gets. Undoubtedly many who take the cure understand there is a trick somewhere, but they do not care, they are disgusted with themselves, take the cure and ask no questions. They have a chance to get sober and obtain a new lease of life. Gold-cure doctors have the advantage over the Christian Scientists, as their treatment is more popular. The gold-doctors have another advantage, the patient can feel the prick of the needle, see the gold, feel the effects (of the apomorphine or tartar emetic), while in the case of the Christian

Scientists the patient must have faith without sight. That is why some cases treated by the Christian Scientists are difficult at the beginning. It takes some time to establish confidence. One thought he had the toothache; another thought his amputated foot pained him. The old soldier thought he was shot. Another thought he had a tumor, and still another thought his appetite was changed, etc., etc.

These cases could be multiplied at great length. They all seemed to be real, yet they were all false; and serve to show the influence of the mind over the body.

Neither of these mind-cures or the physician can compare with the hypnotist. The hypnotist can make his patient believe he is anything from the missing link to the father of our country. He can cause a staggering gait or cure drunkenness, cause pain or stop pain, and while the patient is in this condition, if he is told to go the next day at four o'clock to some certain place and turn his coat inside out, he will do so, although he has before this been brought out from under the influence.

The following notes on hypnotism are taken largely from the writings of X. La Matte Sage, P.H.D., L.L.D.

The key to hypnotism is suggestion, with expectant attention upon the part of the hypnotized. If a man who has never heard of hypnotism looks at a revolving mirror without being told why, a

drowsy condition which merges into sleep ensues. Explain to him the nature of the mirror, however, i. e., arouse expectant attention, and hypnotism is produced in many cases.

The highest authorities on hypnotism tell us that it is within itself absolutely harmless. The most susceptible subjects are said to be intelligent people having strong minds and will-power. This is contrary to the belief of many who think only weak-minded people can be hypnotized. Hypnotism is not a conflict of will-power, as the person hypnotized may have a very much stronger will than the operator. There is a widespread delusion that hypnotism is some special, august, or awe-inspiring power, through the medium of which its possessor dominates the minds of others. But this is not true. It is difficult to hypnotize people of a low order of intelligence, as it is difficult for them to understand what you want them to do. And often they have not the mental training sufficient to produce a ready concentration of mind. For these reasons idiots, the insane and children under the age of understanding, cannot be hypnotized. Certain faculties of the mind act as sentinels and inquire into the nature of things. These are called objective faculties. What are called the subjective faculties are supposed to be incapable of reasoning, but they are thought to be those faculties in which memory rests. It is the objective or reasoning faculties that are lulled under the influence

of suggestion and the subjective faculties remain normal.

Perhaps all have read or heard of cases in which people have been hypnotized and allowed to remain in a trance condition, yet such statements are absolutely without foundation. Such statements come from those with preconceived ideas, and such people, even if they are educated, use very little judgment regarding hypnotism or anything else. Sensational reports regarding hypnotism are the result of ignorance, or a desire to deceive. Any case will recover in a few days in spite of the operator.

It is easy to convince superstitious minds that hypnotism does great harm, notably in spreading the knowledge of a science, which they firmly believe emanates from the devil, or if not that, they are opposed to letting a dreadful (?) and mighty (?) power loose in the land. Ignorance and superstition cry out against hypnotism, and the unwarranted assumption of this class allows their antagonism to run so high as to advocate suppression by law. Such acts remind us of the dark ages when our ancestors issued edicts againt everything not strictly in accordance with their own peculiar notions.

The highest authorities hold that in the hypnotic state an honest man cannot be made to steal, nor a moral man to commit murder, and no one can be compelled to perform any act contrary to any well-settled moral principle. Self-sugges-

tion is stronger than the suggestion of the hypnotist, and when the hypnotist gives a command opposed to the subject's own suggestion or moral belief, he will refuse to act. These are facts recorded by the most able experimentors, and proven by practical demonstration.

There is no instance on record in which anyone has ever divulged a secret while under hypnotic influence, although it has been tried over and over again. Hypnotism is of no value in extorting confessions from criminals. People will tell falsehoods during the hypnotic state, the same as they will in the natural state.

A subject of good moral character cannot be induced by hypnotic suggestion to perform any act which he would consider immoral while awake.

Many people are firm in the belief that hypnotism is the work of an evil spirit, yet its simplicity may be realized by remembering that hypnotism may be self-induced by concentrating the mind, showing beyond a doubt that it is a subjective condition, i. e., exists in the mind of the subject. The operator merely assists the subject to enter the state. All this shows the result of the mind's influence over the body.

Camp meeting conversions (?) where the convert falls to the ground unconscious are also examples.

The first messenger announces the death of a friend. The second says the friend is not dead

but improving. The first messenger causes grief, the second joy.

The man who works for seventy-five cents a day will tell you he is blue, and the man who works for five dollars a day will tell you he is happy. Change places with the men and each will tell you exactly the opposite. With some darkness brings a sense of fear as they believe there is danger. The morning light brings joy as they believe there is no danger. A man enters the doctor's office:

He had a madly jumping tooth.
The pain was grievous, very.
He only laughed and said, forsooth,
It's all imaginary.

Was it imaginary? It may have been real pain, but it stopped because the patient was afraid the cruel forceps would produce greater pain. In this instance the mind was influenced through fear.

These different beliefs are but different expressions of the same mind. Joy is an expression of the mind, so are love, hate, pleasure and pain. So is instinct. Instinct is the source of all knowledge, it precedes the birth of reason, logic, invention and other faculties of the mind, just as the elements precede the compounds into which they enter. Music is the outgrowth of instinct; so are the different religions. In a thousand ways we see that the human mind may be led like a child. Many descriptions are given of the

mind, also many divisions of its powers, yet the mind is as fathomless as space. Poets and metaphysicians talk about the innate power of the mind. Some tell us the mind is a disembodied soul. The mind cannot be comprehended, explained, analyzed or reduced to materiality, any more than we can analyze the tornado, put the thunder-cloud in our vest-pocket, or quaff lightning as a beverage.

"The theorists may put on their robes of mystery, arm each eye with a microscope, each finger with the keenest sensibllity of the phrenologist, stimulate their mental powers and their imagination to the highest pitch, tax speculation one hundred per cent, and they cannot weave the faintest material fiber of the mind."

DISEASE.

Barring accident, injury or abnormal development, disease is the result of some disturbance of the digestive organs.

The different diseases are but different expressions of one cause, namely, auto or self infection. I know there are many who do not agree with this statement, not yet, but gradually they are being converted to reason and better judgment. Gradually the theorist is letting go some of his faith in germs and accepting a more reasonable teaching.

The human system produces enough poison in twenty-four to thirty-six hours to destroy life if it were retained in the body. This poison is the natural waste and worn out matter which in health is eliminated and replaced by the food that we eat. Many of the diseases named in this chapter are more clearly described under alcohol. They may be caused by alcohol or tobacco, by improper food, by rapid eating, by eating and drinking too much, by too much strong tea and coffee, by late suppers, by irregular and careless habits, by decayed teeth, by a lack of exercise and of fresh air, by too much hard work, by laziness, by exposure, by improper clothing, or by some form of excess.

All realize the importance of eating, but the necessity of equal elimination is but imperfectly appreciated.

So long as waste and repair are equal, and the waste is eliminated as fast as produced, health is the result; but when the equilibrium is disturbed, disease is the result. It is understood, of course, that there may be a natural increase, or decrease; i. e., should a man commence the blacksmith's or the carpenter's trade, there would be an increase in the muscles of the arm using the hammer or the saw; should he change his occupation there might be a decrease in the same muscles. In the first instance there would be an excess of growth over waste, and in the second an excess of waste over growth, yet neither would indicate disease.

When the blood is poor and the circulation sluggish, the little cells and tissues of the body lose their vitality from a lack of nourishment, and it is this condition that opens the door to disease.

It is estimated that the network of blood-vessels which envelop the body, and which lie just beneath the skin, are capable of holding one-half the blood in the system. This is evidence that nature has designed free peripheral circulation.

In health the average amount eliminated through the skin is about twenty-four ounces in twenty-four hours. This watery exudate contains from two to four per cent of solid matter. Should a part of this be retained in the system, it would act as an irritant or poison, and produce

a low form of inflammation or disease. Should all be retained it would produce death.

Cold stimulates the nerves supplying the sweat-glands and the peripheral vessels, and they contract. This locks up the secretions and causes congestion of the internal organs, and digestion is interfered with. This increases the waste and irritating substances. This condition usually results from improper food, rapid eating, etc., as already stated.

Elimination relieves congestion and inflammation, causes free circulation, flushes the capillaries or small blood-vessels, carries away waste, restores normal resistance to external influences, and thus wards off disease.

Digestion, assimilation and elimination, are the foundation stones of life and health.

Disease is an indication that waste and poisonous matter is retained in the system and must be removed before permanent improvement can be hoped for. If two pounds of food are taken into the system, two pounds of waste must be eliminated, or the health will suffer.

When elimination is checked, the waste blocks the circulation, causing congestion, first in those organs doing the most work, because they produce the most waste. With poor digestion, faulty elimination, and a lack of nourishment which must follow, the whole system is weakened and depressed, and there may result chronic bronchitis, pneumonia, consumption, rheumatism, dis-

ease of the heart, brain and spinal cord, Bright's disease, or any other ailment. Some being liable to one and some to another, according to their several powers of resistance.

Dyspepsia is usually accompanied by constipation. Following this comes degenerative changes in the digestive tract and the production of poisons, some of which enter the circulation, and gradually the individual is overcome. The nervous system is bathed with impurities and loses its sensitiveness and power to control, the brain becomes clouded and dull, a sense of languor and indisposition pervades the whole being, the activity of the tissues or cells is diminished, their power to select nourishment is lessened, the blood lacks the normal elements, and the most shattered state of the vital forces exists. Ambition and energy are gone, and that "tired feeling," so dear to the patent-medicine shark, takes possession. This condition may exist for months in a mild form, the individual keeping about his work, or may explode suddenly, producing great prostration.

The trouble usually commences in the stomach. The irritation paralyzes more or less the delicate nerves supplying the blood-vessels. They lose control, the vessels dilate and too much blood is the result. The mucous membrane lining the stomach is thickened and swollen, the digestive fluid becomes changed in quality, it lacks the digestive power, and the secretions become thick

and tenacious, the result of catarrh of the stomach.

The septic condition of the digestive tract may result in appendicitis, typhoid fever, or peritonitis (inflammation of the membrane surrounding the digestive tract.) It may cause chronic catarrh, tuberculosis, or cancer of the stomach. Tuberculosis of the digestive tract in adults rarely occurs unless other parts of the body are invaded first.

In nearly all cases of fatal chronic diseases of the heart, brain, lungs, kidneys, rheumatism, etc., we are told that a careful examination of the mucous membrane of the digestive tract will show numerous traces of disease, inflammatory thickening and ulceration. "In may instances the mucous membrane of the stomach is found detached, leaving the inner surface of the organ raw and granular." Many of the glands that furnish the digestive fluids are narrowed or destroyed. The ducts which convey the bile and pancreatic fluids (digestive fluids) are often contracted and thickened. This prevents, more or less, the flow of these fluids, and digestion suffers in proportion.

In health the higher forms of digestion are carried on in the circulation, but with the condition described such digestive changes do not take place, or rather the change in the digestive organs and fluids permits an ever-increasing amount of waste to enter the circulation, and

these irritating substances result in a low form of inflammation.

The bile-duct opens into the digestive tract three and one-half inches below the stomach. During congestion or chronic inflammation from septic blood, this duct may become closed, obstructing the flow of bile, which now seeks other means of escape, some passing out through the skin, producing its characteristic color called jaundice. This condition is also indicated by a bitter taste in the mouth.

With fermentation in the stomach the taste is sour, because the stomach produces acids.

The return circulation from the digestive tract passes through the liver, hence any poisons resulting from poor digestion are carried direct to this organ, and result in inflammation and enlargement, or may be followed by liver abscess, fatty degeneration, cancer, etc. The kidneys are small organs, yet they contain a comparatively large amount of blood, hence poor digestion and a disordered system may produce a low form of inflammation and Bright's disease, which has been more fully described in the chapter on alcohol.

Passing through the circulatory system the septic blood affects the arteries, producing chronic inflammation. The arteries first thicken and then become soft and flabby, the result of degenerative changes. The arteries lose their elasticity, and there results a lack of nourishment in the

tissues or organs supplied by the diseased vessels, or the vessels may rupture. The small arteries are most liable to injury, as they are thinner and more easily destroyed. A blood-clot may form at the point and prevent hemorrhage. This clot is called a thrombus. It would stop the circulation, and the part or tissues supplied by this artery would lack nourishment, die, degenerate and soften, or an abscess may form. If in the stomach it would cause ulcer. The diseased arteries may gradually narrow without a blood-clot until the nutrition is so far shut off that softening may occur.

Some of the changes in the arteries are naturally the result of old age, yet as a result of septic blood and a disordered system, they may be, and are frequently, met in the young and those of middle life. Any condition that interferes with digestion or lessens oxidation may produce fatty degeneration of the heart, kidneys, liver, brain and other tissues. These changes are more fully described under alcohol.

HICCOUGH.

The diaphragm is a thin membrane which divides the chest from the abdominal cavity, and aids in respiration, rising and falling with each breath. The stomach is placed just beneath the diaphragm. The diaphragm passes obliquely backward and downward, hence it is not only above but partially behind the stomach.

During indigestion the stomach may become very irritable and sensitive. The constipation which follows causes bloating and pressure and this increases the trouble. The stomach is forced upwards and irritates the diaphragm.

The solar plexus is a large collection of nerves situated just behind the stomach. Irritation may be communicated through this bundle of nerves, as it receives branches from both the stomach and diaphragm. Any condition which stimulates the diaphragm may result in hiccough, as the mechanism of its production rests upon the contraction of the diaphragm downward. This is so sudden that it causes a vacuum in the chest. The outside air now attempts to rush into the lungs, but is prevented by the sudden closure of the glottis, the space between the vocal cords through which the air passes. This produces the peculiar sound known as hiccough.

Why does the glottis close at this time more than during ordinary breathing? Because the spasmodic action of the diaphragm against the stomach causes spasm of this organ also, and the same nerve which supplies the stomach supplies the vocal cords, hence every spasm of the diaphragm being conveyed to the stomach is flashed over the nerve-fibers to the vocal cords and they contract, closing the space between them.

Hiccough usually stops without attention. Sometimes the trouble is persistent and is said to cause death. Hiccough never causes death. It is

only a symptom. It is the septic condition of the digestive tract that causes death. Free elimination will usually relieve the trouble.

Hiccough may be caused by inflammation of the upper part of the spinal cord, as that part of the cord situated in the neck sends out the nerves which pass downward through the chest cavity and supply the diaphragm, and the inflammation might so irritate and excite these nerves as to cause spasmodic action, as described.

A tumor in the lungs may cause pressure upon these nerves and result in irritation and spasm. The same nerve that supplies the lungs also supplies the stomach, and through the solar plexus communicates with the nerve supplying the diaphragm; hence the irritation from a tumor in any part of the lungs may cause spasm and hiccough.

Hiccough may result from a strangulated hernia, because the nerves which supply the digestive tract also communicate with the solar plexus and thus with the diaphragm.

Peritonitis or inflammation of the thin membrane which surrounds the digestive tract may also cause hiccough.

GLYCOSURIA, OR DIABETES MELLITUS.

During digestion the starch contained in the different food-products is converted into glucose or grape-sugar. This is absorbed and carried by the veins direct to the liver, where some of it is

converted into a substance called glycogen, and this is stored up by the liver-cells and delivered to the circulation as the system requires. As a result of indigestion and lack of nourishment the liver may become unhealthy and unable to convert the glucose into glycogen, and then there is too much glucose or grape-sugar in the circulation.

The system cannot oxidize so much, and passing through the circulation it irritates and weakens the kidneys, until some of it finds its way into the secreting tubes and is eliminated.

Primarily this is called glycosuria, or diabetes, later it produces Bright's disease.

In health the glucose or grape-sugar is oxidized, i. e., unites with the oxygen from the air we breathe. This produces heat and aids in maintaining the bodily temperature, but the system cannot oxidize the excessive amount present in diabetes, hence its appearance through the kidneys, and later Bright's disease.

The cause of glycosuria has never been given. Medical authors have charged the disease to the liver, kidneys, pancreas, brain, "some undiscovered condition of the nervous system," etc. Undoubtedly the first cause of this disease is found in the lowering effects of dyspepsia and retained waste. This results in a lack of nourishment, the nervous system becomes weakened and irritated, and the different organs cannot properly perform their work. The liver is unable to con-

vert the glucose into glycogen and too much grape-sugar is permitted to circulate through the system. This acts as an irritant and increases the trouble, the liver becomes inflamed and disease follows. This corresponds to the condition of the liver, for it is inflamed and enlarged.

A diseased stomach irritates the heart and it becomes weak and fluttering. This is often called palpitation. The sympathy between the heart and stomach are close, because the same nerve supplies both organs. A diseased stomach and a weak heart cause a feeble circulation; a feeble circulation lessens the lung-power, breathing is interfered with, less oxygen is taken into the system, the red corpuscles (the oxygen-carriers) become pale and lose their vitalizing influence, less carbonic acid gas is exhaled, the lung-tissue loses its vitality and elasticity from a lack of nourishment, congestion of the lungs follows, producing an unhealthy exudate in the air tubes, followed by more or less cough and expectoration. This is bronchitis.

With a feeble circulation the skin becomes inactive and fails to eliminate. The dense network of vessels which lie just beneath the skin are congested and the circulation sluggish, the glands in the skin become filled with decomposing matter and inflammation and excessive secretion results as in eczema, dandruff, and other forms of skin disease. These conditions do not respond readily to treatment; thus proving that the cause is sys-

temic. Boils and carbuncles are produced in the same way.

Chronic congestion with partial loss of nerve-control may result in rapid proliferation of morbid or diseased tissue and produce cancer.

TUMOR.

The bacteriologists would have us believe
That cancer is caused by germs.
They tell us that the cancer-bug feeds on human flesh,
The schizomycetes on the liver;
While the actinomycosis and the lockjaw forces
Send their victims o'er the river.

Cancers are sometimes simply termed tumors. A tumor is any overgrowth, or abnormal development. Inflammatory swellings are sometimes called tumors. Tumors are deviations, both in size and shape, from the normal tissues in which they are found. Tumors usually possess an inherent tendency of growth; their growth is independent, continuing when the rest of the body is only being maintained in its normal type, or while the tumor is growing the body may lose in weight. Those tumors which end fatally are called malignant; those which are not destructive to life being called benign.

One of the leading characters of a malignant tumor is a tendency to degenerate and destroy the ultimate elements of the tissue in which it occurs. Generally speaking, a tumor may be

considered c[illegible] trates or invades surrounding tissue, when it invades the connecting lymphatic glands, when it is attended by stinging or darting pains, or by obstinate and slowly extending ulcerations, when occurring in a person having impaired health, and not traceable to any known cause. People who brood in secret over the suspicion of a cancer subject the system to lowering tendencies, which render them more liable to other diseases. A cancer grows from a division of its own cells, and without any support from the cells constituting the surrounding tissue.

Tumors are subject to disease the same as healthy tissue. Aside from transmission from the blood-stream and lymphatics, malignant growths may be carried down the trachea, and through the ureters. The more purely cellular the tumor, the more malignant the growth. Neuromas, or nerve-tumors, are rare, affect only the motor nerves, and are harmless except from pressure or mechanical interference. Malignant tumors are called carcinoma, sarcoma, and epithelioma. Carcinoma has a frame work of connective tissue the same as other structures and organs, and the intervening spaces are filled with epithelial cells. Epithelium is the name given to the cells which cover the surface of the body and all mucous membrane. When the connective tissue framework is thick and the spaces are filled with large cells, the cancer is hard and fibrous.

Some amount of connective tissue framework, with a corresponding increase in the epithelial cells which constitute the growth, giving it a soft appearance, resembling the physical character of brain-matter, hence they are called encephaloid, meaning brain-like.

Sometimes hard carcinomas, which grow from the skin and mucous membrane, are called epitheliomas. They occur on the lip, nose, tongue, stomach, etc., so called because of their being located on the surface. Carcinomas are formed in the lymphatic tissue. The spaces between the fibers which form the framework are merely dilated lymph spaces, and these spaces are more or less filled with epithelial cells. The blood-vessels are situated in the connective tissue framework, therefore do not communicate directly with the cells, which lie loose within the spaces, and which constitute the growth. If carcinoma should cause destruction of the connective tissue framework sufficient to reach the blood-vessels, more or less hemorrhage would result and it would then spread by the blood-stream as well as by the lymphatics. As carcinoma or cancer is always derived from epithelial cells, it may occur primarily wherever these cells are found. These cells cover the mucous membrane of the digestive tract, that lining the air-tubes of the lungs; they cover the serous membranes lining all closed cavities, as the abdominal, chest cavity, etc., all glands and their

ducts. When cancer is found in other tissues it is secondary, having been carried by the circulation or lymphatics. Those forms of cancer called Sarcomas, like carcinomas, are given many names. They are composed of embryonic or newly formed connective tissue cells. Connective tissue forms a framework for all the structures of the body. When resulting from inflammation, the new cells are first small and round, next they elongate into oval or spindle cells, then become hard and fibrous. In sarcoma these cells may undergo no higher change but remain round, or they may become oval, spindle-shape or fibrous; hence there are round-cell sarcoma, oval-cell sarcoma, and spindle-cell sarcoma. When there is general fibrillation with loss of many cells, as in degeneration, they are called myxoma, or myeloid sarcoma, from their resemblance to bone-marrow. Sometimes the framework contains black pigment or coloring matter; these are called melano-sarcoma.

Combinations of these and other names are used. Chrondroma means a tumor springing from cartilage; osteoma, one springing from bone; myoma, springing from muscle; neuroma, nerve-tumor. Myxoma (mucus) or myxo-sarcoma, is so called when degenerative changes have produced a gelatinous substance resembling mucus.

Lipoma is one containing much fat.

Sarcomas are composed of embryonic or newly

formed connective tissue cells, and may occur wherever there is connective tissue. They may arise at any age, but are most common in early life, while carcinomas seldom occur before forty years of age. In carcinoma the blood-vessels are situated in the connective tissue framework, in sarcoma they open directly into the growth, and in their passage through the tumor the vessel walls are formed by sarcomatous cells; therefore the cells may easily fall into the current and be washed away by the circulation. The veins may carry some of these cells to the heart, and as the blood is sent through the lungs the malignant cells may lodge in the capillary network of vessels and produce secondary sarcoma. Emboli, or blood-clots, may now be carried back to the left side of the heart and sent through the general circulation, and may lodge in the brain, liver, kidneys, bone, etc., and produce secondary sarcoma. Sarcomas usually grow more rapidly than carcinomas by reason of their more direct blood-supply; and when removed they are more likely to recur, because, as just explained, the malignant cells are more liable to be distributed through the system and may develop at any point.

Eating cancer, or rodent ulcer, always occurs on the face and springs from a sweat-gland, sebaceous gland, or hair-follicle.

Birth-marks are sometimes called angioma, meaning blood-tumor. They are caused by di-

latation of the blood-vessels which lie just beneath the surface.

These different varieties differ only in the size and shape of the cells of which they are formed, and the part of the body in which they are located. Really it is a distinction without a difference, for unless successfully removed all, except birth-marks, are destructive to life.

Benign tumors, or those not destructive to life, are common connective tissue overgrowths. Usually their only danger is their mechanical interference with the surrounding structures. However, they may rotate at the point where they are attached (pedicle), and this may cause pressure and check the return circulation. The veins would become congested, rupture, and be followed by hemorrhage. Inflammation and suppuration may follow, or inflammatory adhesions might occur, the tumor becoming attached to the surrounding structures. This might cause perforation into the digestive tract, and be followed by death.

Their pressure may cause inflammation of the kidneys, constipation, spasms or paralysis by pressure upon nerve-fibers, or may cause enlargement of the heart, and be followed by degenerative changes, etc. None of these conditions often occur, yet they should be considered of sufficient importance for the removal of benign tumors. Medical writers have never given the cause of tumors, or the causes from different investigators

are but different theories, varying in probability and ingenuity.

CANCER.

A prominent medical writer said recently: "The theory of germ-causation, never generally accepted, has been almost entirely abandoned. The view most generally entertained at this time is that cancer is the result of rapid growth of the cells of the basement membrane, due to septic blood." Basement membrane is a thin layer of flattened, almost indistinguishable cells, just beneath the surface of the mucous membrane. It also forms one of the layers of the skin, and dips down into the little glands of the skin, stomach, etc.

"Cancer is most apt to occur in an organ where septic blood has produced chronic congestion or inflammation, and nerve-control has become partially lost through gradual progressive paralysis. In other words it is a degenerative change. The nutrition and function of the organ involved have escaped the control of the nerves, and the cells of the part multiply energetically and lawlessly, according to their nature. Rapid multiplication of tissue-cells always means a diminution of vitality in each individual cell.

"In health the nerve-supply imposes cell-function, retards decay and death; but with this influence impaired or removed by paralysis, the tissue-cells know no higher law than their own

inherent tendencies, and with the abundance of blood and lymph furnished by the engorged organ the diseased cells multiply and reproduce their kind with the greatest luxuriance and abandonment. The most immature and imperfect formed cells—those of the surface—are constantly dying and breaking down, furnishing the phenomena of ulceration and hemorrhage." This corresponds exactly with the condition which exists during dyspepsia; lack of elimination, lack of nourishment, and the degenerating tendencies which always follow.

RHEUMATISM.

Rheumatism is not a disease but a symptom—a symptom of a disease generated in the system. The term muscular rheumatism is not correct. Strictly speaking it is neuralgia and neuralgia is but nature's voice calling attention to our errors. If the reader could examine the affected muscle under the microscope, the fibres of which the muscle is formed would be found in a natural condition. There would be no inflammation or other evidence of disease; demonstrating clearly that the trouble was confined to the nerve-fibres and not in the muscle. The pain may be increased by exposure, insufficient food, improper clothing, etc. Hard work also increases the irritation, hence those muscles doing the most work are most affected, as those of the back, shoulders, wrist or other joints

Rheumatism may be acute or chronic, may affect muscles, joints or other structures. Rheumatism of a joint differs from muscular rheumatism. Every joint is enclosed in a thin membrane in the form of a short, wide tube. The membrane is attached at either end to the margin of the articular surfaces of the bones forming the joint. This membrane encloses the various ligaments, which support the joint. This membrane furnishes the secretions or fluids, which lubricate the joint and prevent friction. In acute rheumatism of a joint the irritation causes an increased blood-supply, and there is swelling and redness in proportion to the increase in the circulation. The more vascular the part, the greater the swelling. The swelling causes pressure and the pressure causes pain. Redness or discoloration is caused by the escape of the red blood-corpuscles into the surrounding tissue. With an increase in the blood-supply there is an increase in the tissue changes, hence an increase in the temperature because animal temperature depends upon tissue change.

This gives what are called the four cardinal symptoms of inflammation, swelling, redness, heat and pain. Pain is not always present. For instance there may be little or no pain in chronic inflammation of the liver. There may be no pain in inflammation of the solitary glands, called Peyer's glands, in typhoid fever.

Chronic rheumatism of joints does not usually

follow the acute, but arises insidiously in people who have suffered from exposure, improper food, overwork and other hardships. In chronic rheumatism of joints the cartilage covering the articulating or adjoining ends of bone may become eroded (destroyed). The exposed bone becomes irregularly thickened, the capsule or membrane covering the joint, and the ligaments which support it, may become fibrous and contract. The prolonged irritation has here caused a slow form of inflammation, and the same changes take place as elsewhere. There is an increase in the connective tissue framework; later this contracts, deforms the joint and limits mobility. The contracting fibres cause pressure, aiding in the destruction of cartilage, ligaments and other normal tissues. Sometimes during these degenerative changes the ligament which supports the joint softens, allowing certain muscles which are attached near the joint to contract, thus causing deformity. Sometimes the tendons and ligaments about the joint become filled with lime salts, of which bone is formed. This results in a stiff joint. Pus does not form.

The best treatment for chronic rheumatism is hot air. A temperature from three hundred to five hundred degrees may be applied. Hot air dilates the small vessels, brings the blood to the surface where it is applied, and thus relieves the congestion or inflammation beneath. It causes the blood to flow through the part. This relieves

the pressure and stops the pain, adhesions and accumulations are broken down and removed, thus preventing stiff joints. There is active discharge through the skin, and this removal of waste relieves the irritated nerves. The improvement in the circulation stimulates natural activity, nutrition is increased, the heart is strengthened, a clouded brain is relieved, the torpidity is overcome.

Massage is also of benefit. Massage stimulates the circulation with the same results as hot air, though it is much more limited in its effect.

Electricity, applied by the interrupted or Faradic current, is only a means of massage. The advantage from the interrupted current comes from the fine, vibratory, massage-like effect; in other words, from the mechanical effect and not from the electricity.

The remedies to be used are laxative and antiseptic. Digestion must be improved. Hot air or drug-medication will be more effectual if administered by one skilled in their application; but what any and every one can do is to guard against all forms of excess, keep the eliminative organs active, and they will not be troubled with rheumatism. Every thinking mind will admit that rheumatism is generated from waste products which are retained within the system. Active elimination will prevent this, and prevention will relieve the necessity of treatment.

Following dyspepsia there is first congestion,

and if continued this results in a low form of inflammation as described. Any part or organ offering the least resistance will be most affected, and when the inflammation reaches a certain point there will be cell-proliferation or increase of tissue, resulting from the increased blood-supply.

The new tissue is a form of connective tissue which nature designed as a framework for all the structures of the body, described elsewhere, but when resulting from inflammation it invariably contracts. First the original cells enlarge, then divide and redivide, beginning in the form of small round cells. These first elongate and are called spindle cells, then fibre cells, and when the limit of their growth is reached they contract. Hence all increase in connective tissue resulting from inflammation is pathological or diseased. Gradually the natural tissue is replaced by the new. This new tissue takes no part in the work carried on by any of the various organs, but crowds out more or less the original, and the organ or part is weakened in proportion. Healthy tissue is caught in the contracting fibres and destroyed. Many small blood-vessels are obliterated. If in the stomach, the part supplied by such a vessel may die from lack of nourishment, degeneration follows, which may result in ulcer, as mentioned. Many glands of the stomach are destroyed, as described under alcohol.

Every scar is an example of this kind of tissue.

The scar looks light in color in proportion to the number of blood-vessels destroyed. If on the scalp the contracting fibres, besides obliterating blood-vessels, will destroy some of the hair-follicles and leave a bare spot. A scar is large or small according to whether the edges of the wound were brought smoothly together or allowed to gape, leaving a space to be filled in with what is called granulation tissue (connective tissue).

The amount of this newly-formed tissue is in proportion to the amount of inflammation and septic or poisonous matter contained in the blood. Perhaps a burn gives the best illustration of the contraction of connective tissue resulting from inflammation, because there is more of it; in this case the tissue destroyed by the burn—dead tissue—is in contact with the healthy, and as the dead tissue is being decomposed and removed its morbid influence comes in direct contact with the living. This is the battle line between the living and the dead, hence inflammation is more intense, and there results more connective tissue overgrowth. As a result of burns many people have seen the hands or face drawn out of all resemblance to a human being.

PARALYSIS.

Paralysis is due to inflammation and connective tissue overgrowth, produced by septic blood. The inflammation affects the spinal cord, or the cord and brain. The changes are caused by irritation

and a loss of nutrition. The irritation paralyzes more or less the nerves controlling the blood-vessels supplying the cord and brain, and the vessels dilate. Too much blood is the result and there follows a low form of inflammation and connective tissue overgrowth, as described. There is a corresponding destruction of nerve-fibres and nerve-cells in the cord and brain. The contraction of the newly formed tissue squeezes the nerve-structures, shutting off their circulation, causing pressure and aiding in their destruction. The nerve-fibres are found in different stages of degeneration. The semi-independent nerve-centers formed by the aggregation of the ganglionic or larger nerve-cells in the cord degenerate and disappear more or less completely. With the destruction of the natural tissue and the contraction of the connective tissue overgrowth, the spinal cord becomes hard and fibrous.

According to the newer teaching the nerve-tissue is destroyed first, and is followed by connective tissue overgrowth. It is impossible for this to be true beyond a limited extent, for the first nerve-cell that died would excite inflammation around it, and this would cause an increase in the connective tissue, and the contraction of this would destroy other nerve-structures, obliterate small arteries, and thus aid in degenerative changes. The question is of small importance, however, for back of all is a lack of nourishment caused by indigestion. Exposure, overexertion

or injury may also be responsible for some cases of spinal disease.

Practically all forms of paralysis are the same. They consist of increased blood-supply, the result of inflammation, followed by degeneration of the nerves and nerve-cells, an overgrowth of connective tissue which contracts and hardens. Sometimes one part of the cord is affected, sometimes another. The changes are the same as those of the stomach, liver and kidneys, described under alcohol.

A nerve is no more or less than a long drawn out process of a nerve-cell. Certain cells in the brain and spinal cord send out these prolongations, and thus the nervous system is formed.

The nerves of sensation arise in the back part of the cord, hence inflammation of this part is first indicated by increased sensibility, which may be in the form of pain, numbness, or tingling sensations. Later there is loss of sensation, showing that the destruction is more complete.

The nerves of motion arise in the front part of the cord, hence inflammation of this part, acting as a stimulant, is first indicated by increased muscular action. This is followed by loss of motion and shrinking of the muscles, showing destruction and degeneration of this system.

The voluntary muscles of the body and extremities are supplied with nerves from the spinal cord. Many of the nerves arising in the brain extend downward, connect with the spinal nerves

and modify or control their action; but during inflammation messages cannot be transmitted through the diseased area in the cord, and this leaves that portion and all below it without a brake, and the spinal nerves having escaped the control of the mind, set up a spasmodic action due to the inflammation.

At first the inflammation acts as a stimulant and the nerves respond by involuntary movements. The patient cannot control his actions because of the constant excitement kept up in the cord.

In the second stage of that form of paralysis known as locomotor ataxia, the feet and lower limbs escape the control of the patient and fly in all directions. Later the hands and arms may suffer in the same way. With the destruction of the nerves, all motion is lost and paralysis is complete.

Paralysis of the lower limbs alone indicates invasion of the lower part of the spinal cord, because the nerves governing them arise in the lower part. Paralysis of the hands and arms indicates invasion of the cord or that portion situated in the neck, because the nerves governing them arise there.

Chronic progressive bulbar paralysis, i. e., paralysis of the muscles of the throat, tongue, lips, etc., is caused by connective tissue overgrowth at the base of the brain, where the nerves supplying these muscles take origin. The nerves themselves are first hardened by inflammatory proc-

esses, and later degenerate. These changes take place gradually; so do these forms of paralysis. At first a few cells are affected, the number increases until nutrition and function of the part escape nerve-control, when the change takes place more rapidly.

A blood-clot may plug an artery supplying a group of nerve-cells in the cord and cause sudden or acute paralysis.

No attempt has been made to give a detailed account of the changes which take place. The object is to call attention to the fact that indigestion from any cause may result in any and all forms of paralysis.

Sometimes inflammation of the spinal cord may follow chronic rheumatism and produce permanent muscular contraction, with great deformity of joints.

These changes in the cord are responsible for all forms of paralysis, and may be caused by the irritation produced by alcohol, tobacco, over-eating, retained waste, etc., as already mentioned. Drinking hard cider will do the same thing. Hard cider contains not only alcohol but many acids which will produce inflammation and chronic catarrh of the stomach, and this means indigestion and disease.

Volumes are written upon paralysis and nervous diseases, volumes that would puzzle the angels and drive the devil crazy, yet the subject is not so difficult to understand. Long-continued

irritation in any part of the body will sooner or later produce its evil effects by interfering with the central nervous system, the brain and spinal cord. Headache is characteristic of this irritation; so are neuralgia and rheumatism. These are nature's language forcibly expressed, telling us of the poison in the body and demanding its removal.

If we continue, we expose ourselves to all kinds of aches and pains, to morbid growths, to all forms of nervousness, to paralysis, etc.

If these statements are true they clear up the causes of many spinal and nervous diseases that have never been accounted for. Yet some people are not satisfied with a plain, simple statement of facts, but prefer to build upon theory, something of a sensational nature. But even theory has never given a cause for epilepsy.

EPILEPSY.

Epilepsy seems to have been born without a father; and like Topsy it never had a mother, yet disorders of digestion, depression of spirits, loss of vigor, a feeling of languor, an unhealthy system, and a clouded brain, are common in epileptics, thus giving evidence of a lack of nourishment. This robs the blood of its natural elements. It has been stated that the higher forms of digestion are carried on in the circulation; for instance, oxidation aids bodily combustion by burning certain elements in the blood, i. e. ,by

uniting with them and producing what are called end-products, so-called because such products undergo no further change, but are eliminated.

To illustrate: As a result of the tissue-change going on in the body uric acid is produced. By oxidation this is converted into urea and eliminated by the kidneys, but with septic blood oxidation is incomplete and urea is not formed, the change stops one step short, and the uric acid remains as an irritating substance carried through the circulation. This results in inflammation and degenerative changes in all the tissues of the body. The uric acid and other irritating substances produce a chemical change in the gray matter (cells) of the brain. First this change occurs in the blood, then in the tissues, including the brain and cord as already mentioned.

If continued, there are later direct molecular or structural changes. This accounts for insanity as well as epilepsy, for during insanity the chemistry of the brain is altered, the composition of the brain-matter is not natural. It cannot be otherwise, impure blood never did and never will produce healthy natural tissue.

One-fifth of all the blood in the body goes to nourish the brain, hence the brain receives five times as much blood as any other organ of its size; and it must follow that any habit or indulgence which impairs digestion, and gives unhealthy blood, must produce a special morbid influence upon the brain and nervous system. Hence

the enormous production of nervous debility, monomania (insane on one subject,) hypochondria (depression of mind,) insanity, idiocy, and many minor ailments such as rheumatism, neuralgia, headache, mental stupor, lack of resolution, etc. Indigestion and retained waste irritate the nervous system and produce the different mental, nervous and emotional states known as hysteria, nervousness, melancholia and other depressions and hallucinations. This is the foundation upon which epilepsy stands.

Dynamite may be struck once, or a thousand times, if the blows are light enough, but sooner or later it will explode; and the irritation produced by dyspepsia may be stored up for a time, but sooner or later it too will explode. It will accumulate in the central nervous system, the brain and spinal cord, until they are surcharged; and now at the first opportunity it breaks forth, and its power for the time is irresistible, as in an epileptic fit.

Eye specialists claim that continued irritation, caused by constant strain of some of the muscles of the eye, has produced epilepsy in school children, and that the correction of the trouble with glasses has resulted in a permanent cure.

The correction removed the irritation.

Those who have studied the question of epilepsy believe that with attention to diet and elimination a cure may be effected, while we all know that drug-medication is useless. Operations are

also useless. All the forms have been tried.

If injury should drive a sliver of bone into the skull, or cause other brain-pressure, an operation might relieve and effect a cure. Epilepsy is seldom caused by injury.

During an attack of epilepsy the patient foams at the mouth because he is unable to swallow. The same is true during an attack of hydrophobia.

Many will be unwilling to believe indigestion the cause of so many ailments, as they may never have had any pain or other evidence referable to the digestive organs; yet pain and other evidences of dyspepsia are not always referred to the seat of trouble, but may be flashed over a nerve-trunk and appear at some distant point. There may be burning, itching, a creeping or crawling sensation in different parts of the body, there may be lightning pains, neuralgia, rheumatism, headache, dizziness, spasms, hysteria, bad taste in the mouth, jaundice, coated tongue, foul breath, and many other manifestations, all the result of dyspepsia, accumulated poisons in the system, bad air, lack of exercise, etc.

Why so many indications from the same cause?

Because of our several powers to resist. A diseased stomach often causes pain in the lungs. That is because the same nerve supplies both organs. This nerve is also connected with that part of the brain which controls coughing, hence the irritation may produce cough. Many think this is evidence of consumption. This is the kind

of consumption that patent-medicine fakes cure. After free elimination and the great benefit that always follows, it is no trouble to get the usual letter from the patient, who no doubt believes she has been snatched from the brink of the grave.

Cerebro-spinal meningitis, or inflammation of the membrane covering the brain and cord, may be caused by septic blood and retained waste. This condition excites inflammation in the membranes mentioned, and disease follows.

As stated, medical authors do not account for many diseases. They tell us they are due to the "preponderance of the nervous system in the bodily conformation," or "to hereditary neuropathic diathesis." We are told that "gelatinous children of albuminous parents," are especially liable to tubercular meningitis (consumption of the membrane covering the brain.)

Take those diseases, the cause of which has never been given, and apply the following:

First, indigestion from any cause.

Second, an unhealthy condition of the digestive tract.

Third, unhealthy blood.

Fourth, a lack of nourishment which must result.

Fifth, the retained waste acting as an irritant and setting up a low form of inflammation (temperature may not be raised).

Sixth, production of morbid or diseased tissue

and destruction of the natural, with corresponding loss of organic function.

Seventh, lowering of all the vital forces; the powers of resistance being more or less diminished.

Eighth, contracting and hardening of the newly formed tissue, producing degenerative changes in all the organs of the body.

The effect extends all the way from slight symptoms to more severe forms, and death.

These conditions and changes actually occur, as every pathologist can testify.

In all cases disease, any disease, is an indication that the system lacks nourishment, that lowering tendencies have been going on in the body, that waste and repair are not equal, that the nervous system has gradually lost control.

It would be unreasonable to say that disease is caused by an increase in power or strength of the individual.

If disease is due to a lack of nourishment, this has been brought about by bad air, poor food, poor digestion resulting from rapid eating, eating too much, from whisky or tobacco, from tight lacing, from lack of exercise, too much hard work, or other forms of excess. The greatest cause is constipation.

Many finely written articles and much theorizing have been indulged in, regarding the causes of constipation; some claiming a lack of development in the thickness of the muscular walls of

the digestive tract, imperfect nerve-supply, poor circulation; in the kind of food taken, in pathologic or diseased relations in the surrounding tissues or organs; some arguing that the malady is congenital (existing from birth,) some that it is acquired; some claiming that it is due to too much hard work, and some to not enough, etc. And all this time constipation reigns supreme, and every day plunges the individual lower in the scale of health. Constipation means the production of many poisons which permeate the system, with lowering tendencies, deadening sensibility, stupefying every fiber. The poisons formed in the digestive tract are absorbed, producing a chronic state of disease.

The blood lacks the normal constituents and contains too much waste, the blood-corpuscles are not healthy, the circulation becomes sluggish, with a tendency to coagulation. These conditions are evidence that nature is demanding her rights. The individual has transgressed beyond the limit of safety, and now must pay the debt, principal and interest.

After disease is established skillful treatment may be needed, yet every disease and condition of ailment will be benefited by a properly selected diet, proper elimination, and the avoidance of all excesses.

Not all the skill of the medical profession has ever been able to treat the different forms of paralysis, epilepsy, consumption, etc., successfully

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with drug-medication alone; and sometimes diseases of lesser gravity, such as rheumatism, sciatica, neuralgia, hysteria, etc., refuse to yield to it. This proves that the disease is systemic, and that general disinfection is needed, something to check the degenerative changes, and natural food to supply and rebuild the wasting tissues.

Foods are derived from the three kingdoms, animal, mineral and vegetable. They are divided into nitrogenous, those containing the element nitrogen; and the non-nitrogenous, or carbohydrates, those not containing nitrogen.

The nitrogenous are classed under the following heads:

Fibrin, from the animal kingdom (all muscle is chiefly fibrin); glutin, from the vegetable kingdom (this is a form of albumin existing in grain); caseine, from the animal and vegetable kingdoms (this is a form of albumin found in milk); albumin, from the animal and vegetable kingdoms.

So closely do these principles agree in chemical composition and properties, that they are considered as being a modification of one substance, and are called proteids. Proteids are the most important of the animal and vegetable compounds, and none of the phenomena of life occur without their presence.

The other class of food-stuffs, the non-nitrogenous, differ more than do the proteids, yet they all have two important properties in com-

mon, and contain two important substances in common, i. e., sugar and starch. Sugar is chiefly of vegetable origin, the animal varieties being honey and the sugar found in milk. Sugar and starch are vegetable products, and under favorable circumstances unite readily with the oxygen in the blood and produce water, carbonic acid and heat.

The three vital processes of life in both plants and animals are digestion, circulation and respiration. Both receive their nourishment from the air and soil. Chief among the substances are wheat, corn, rye, oats, barley, rice, etc. Collectively these are called cereals, and are said to contain all the elements necessary to maintain human life. There is said to be no record that takes us back or beyond the cultivation of wheat. It has been found in the lake dwellings of the ancient Swiss, and many believe it has existed since man has existed.

It is estimated that two-thirds of our food is starch. Uncooked starch is indigestible. Unripe fruit contains starch, hence the danger of eating it uncooked. The starch is converted into sugar during the process of the fruits' ripening. Some fruits contain sugar in considerable quantities, giving them a sweet taste. This is grape or starch sugar, and it is only one-half as sweet as cane or granulated sugar.

Much has been said and written concerning the

food products—what we should and should not eat. But when it comes to the question of food and drink, we are continually making mistakes.. As evidence, we have but to view the thousands of dyspeptics on every hand.

Pepsin is the great remedy for dyspepsia, and every butcher shop, sausage factory, and all the great slaughter-houses throughout the country have found it profitable to go into the pepsin-manufacturing business. Never before were there such enormous quantities of pepsin manufactured, and never before was there so much dyspepsia. Gradually we learn that we cannot purchase our digestion ready made.

Statistics prove that dyspepsia is the primary cause of sickness in nearly one hundred per cent. of cases. Few escape the ravages of dyspepsia at some period of their existence. When the stomach begins to give trouble, artificial digestants are resorted to, and the great army of consumers turns first from one remedy to another, each one making the rounds independent of the others. In this way the different manufacturers of the "dope" are kept busy, and sharpers are making fortunes every year. The class of people who take this patent stuff are looking for a specific, a something that will allow them to continue their indulgences and excesses, at the same time paying little or no attention to the demands of nature. But sooner or later nature claims her

rights, and for every transgression the individual must pay principal and interest. It may be in the form of an acute attack, a gradual and lingering disease, some of the many deformities from rheumatism, spinal disease, or an early death.

Every one should learn that artificial digestants afford but temporary relief, that their effects are only palliative, i. e., they quiet the symptoms without touching the cause; and that if continued these remedies will still further weaken the digestive organs. They do this by doing their work for them. It is well known that nature does not waste any of her forces, and that she does not perform any work in vain, and if artificial digestants are employed the natural digestive fluids and ferments will cease to flow. The muscles of an arm would atrophy (shrink) if the arm should be carried in a sling. A joint would refuse to act if it were kept for a long time in one position. When the arm and joint cease to act nature ceases to supply them. The same is true of the digestive fluids. If they are supplied artificially, the digestive organs will go out of business—atrophy—like the muscles of the arm carried in the sling, or refuse to act, like the joint that had remained too long inactive.

The symptoms of dyspepsia are, flatulency (or wind on the stomach) with eructations, bad taste in the mouth, coated tongue, foul breath, sense of

fullness, soreness, pain, or a feeling of weight in the stomach, a raw or burning feeling in the stomach or behind the chest bone, low spirits, evil forebodings, pressure over the stomach, drowsiness after meals, headache, palpitation of the heart, with flutterings, and at times a hesitancy in its action, nausea and perhaps vomiting, at times the appetite poor and again ferocious, after which undigested food may lie in the stomach for hours or days. This may give the stomach control over the mental faculties, and the sufferer becomes irritable, may be unable to sleep, or may be troubled with bad dreams. Many great men and high livers have suffered from dyspepsia.

Where indigestion occurs in the digestive tract below the stomach, there is pain or soreness two or three hours after eating. If gas forms, there is a sense of fullness and bloating. If long-continued the sufferer will become emaciated from lack of nourishment.

The remedy for dyspepsia is largely in the hands of the sufferer, and can be expressed in one word—Diet.

Eructations in which there is recognized by taste or smell anything eaten or drank, is evidence that the stomach cannot care for it. It is an indication that fermentation has occurred, and the flavor or odor of food is being thrown off, with the gases of decomposition. This may re-

sult from improper food, more often from eating too much or too fast. If the eructations are greasy, avoid fats; if they are sour, avoid sugar and starchy foods, as these produce acids which cause the sour taste. If there is a bitter taste in the mouth it is bile, and indicates congestion of the bile-ducts.

The stomach does not rebel without a cause, and its warnings should be heeded. When stomachal digestion is perfect we are unconscious we have a stomach. Every organ has its individual signs by which it makes known any abnormal condition, and it is upon the recognition of such signs that diagnosis is made. Diet, fresh air, sunshine and proper exercise, will cure most cases of dyspepsia. "If muscular exercise could be bottled up and administered in tea or tablespoonful doses, while people were in bed or comfortably seated in rocking-chairs, it would be more generally indulged in, and those preparing such treatment could command their millions." Ball playing, Indian-club swinging, the use of light dumb-bells, the play ground with its sunshine and pure air, or gliding over the dancing waters in boats, are better than medicines, tonics, bitters, pills, powders, patents, and poor whisky. Remember, the three great physicians of nature are fresh air, pure water, and sunshine.

When the stomach is irritable through indigestion, the condition is reflected to the brain and

other organs through the connecting nerve-fibres. This weaves a thread of disorder which may baffle human skill. This condition produces many imaginary ailments, the "blues," melancholy, irritability, etc. These cases do not need medicine. It is as absurd to treat such cases with medicine as it would be to give medicine for lameness caused by a sliver driven into the hand, The stomach needs a rest and freedom from all irritating substances, just as much as the hand needs to have the sliver removed. Any quack can dose a dyspeptic with cathartic pills and whisky-bitters, but it takes a profound physiologist and a good cook to prepare food for a diseased stomach.

All starchy foods should be cooked for a much longer time than usual. We read that bread is the staff of life, but as stated, there is nothing said about dough.

Many cases of dyspepsia can be cured by eating slowly. It may be interesting to know that a glass of ice-water lowers the temperature of the stomach thirty degrees, and this has a powerful effect in checking digestion, and in producing shock.

ALCOHOL.

Because of the popular opinion in favor of alcohol, the author realizes that the following pages may bring forth many criticisms, and antagonize many opinions, yet the following statements are made after a careful study of alcohol and its effects, and such statements are true.

The author understands that the general public has been educated to believe alcohol is not only a stimulant and a remedy to be relied upon in emergency cases, but that it is a useful household remedy, and especially when "used as a medicine." Many people are sure that alcohol was a benefit in "such and such a case," others can recount one or more instances when alcohol saved life, while still a greater number merely suppose alcohol of value. We should remember that regarding the use of alcohol, it is easy to make converts. Many are friendly because they like to drink it, others use it because popular opinion favors it.

Many people use alcohol to cure the "grip." The alcohol stimulates the animal nature, produces a sense of semiunconsciousness, and this relieves present suffering and tides the man over his present trouble. With the disappearance of the disease, the consumer naturally declares in favor of alcohol.

Did the alcohol really benefit the man? No; it deadened sensibility and thus gave temporary relief, in proportion to the amount taken, yet while the man did not realize his true condition, the disease did its work just the same, and now the patient must recover not only from the effects of the disease but from the alcohol also. Morphine would give the same relief, yet no one would consider morphine a benefit. The author does not wish to appear prejudiced or unreasonable; he admits that alcohol produces a sense of animal exhilaration, which some may be pleased to call a temporary stimulant, and in case of great prostration of bodily functions as in accident or shock (whatever that is), where nothing else was at hand, the author would use alcohol.

Perhaps the greatest confidence in alcohol comes by way of the medical profession. Some physicians prescribe whisky, and in the minds of many, that settles it. The author has seen many a "drunk" as the result of the doctor's ordering whisky; of course the patient was the victim here referred to.

The author hopes there is not a single doctor who would disgrace himself by getting drunk.

Prof. Chittenden, the well known physiologist of Yale, says that alcohol will increase the amount and the digestive power of the saliva and of the fluids of the stomach. The Professor says that the small amount of fusel oil found in whisky does not interfere with digestion. That a

wineglass of twenty per cent alcohol is equal to a wineglass of starch. It may be added that a wineglass of starch is equal to about half a loaf of bread. We are to infer from this that alcohol not only aids digestion, aids the consumer to eat more and digest better, but it is itself a food giving energy and strength to the system. The Professor has forgotten to tell us that these conclusions were the results of experiments which were probably made upon dogs, and for a limited time. Other experiments were made in little glass tubes called test tubes; this part of the experiment probably taking place in some laboratory.

Another Professor, who is regarded as high authority, Prof. Atwater, of Wesleyan College, is said at this time to be conducting a number of experiments for the United States government, to determine the action of alcohol in the human system. According to published statements, he informs us that two and one-half ounces of alcohol, each day, will produce no evil effects.

Two and one-half ounces of alcohol each day is equal to about one pint of whisky, or ten pints of beer, every three days. Prof. Atwater is quoted as saying that alcohol is oxidized in the system as completely as bread, meat, or any other kind of food; and that all the potential (real) energy of the alcohol is transformed into heat and muscular power. In other words, the body

makes the same use of the energy of the alcohol as it does of sugar, starch, and all other ordinary food-products; and weight and strength are maintained just as well with alcohol as with starch. It should be remembered that starch means bread, potatoes, rice, etc.

The Professor explains that the body can easily dispose of such amounts as are taken by the moderate drinker. The Professor bases his opinion upon his experiments, where he has given small quantities of alcohol for a limited time, and those upon whom such experiments were made seemed to remain in a normal condition.

He forgets that the action of alcohol is insidious and slow, and cannot be understood or shown by such superficial experiments. Before giving the effects of alcohol upon the human system, let us contrast the opinions of Professors Chittenden and Atwater with the opinions of other men who are thoroughly acquainted from a practical standpoint with the effects of alcohol.

The Outlook for August, 1899, contains the following: In his textbook on mental diseases, Dr. Bevan Lewis, of England, says of alcohol: "No poison except the virus of syphilis plays so extensive a role in the morbid affections and degenerations of tissue, nervous or non-nervous."

Dr. Lankester, Wm. Gall, Dr. Norman, Dr. Dods, and a long list of eminent English physicians, have expressed similar opinions.

Among American physicians, of national and

international reputation, who have unhesitatingly pronounced alcohol a poison, are Wm. A. Hammond, N. S. Davis, Sr., and Austin Flint. The latter in his Practice of Medicine, said of certain classes of poisons: "The morbid effects are proportionate to the quantity received into the system. Certain poisons exert certain effects upon certain parts of the body, thus alcohol and opium exert their effects upon the brain."

In addition to the individual testimony just quoted, alcohol will be found classed as a poison by such medical dictionaries and standard reference books as Quain's Dictionary of Medicine, Gould's Dictionary of Medicine and Allied Sciences, Taylor's Medical Jurisprudence, Allen's Commercial Organic Analysis, and Dunglison's Medical Dictionary.

The Outlook for October, 1899, contains the following:

A doctor of Paris, member of the French Academy of Medicine, says: "The workmen, women, and children absorb under all its forms a poison that filters through the body, which, under the action even of small doses daily repeated, breaks the strength, paralyzes the nervous system, annihilates little by little the intelligence, strikes the drinker with precocious senility, and makes in a few years, sometimes even in a few months, of an individual once robust, active, and a valuable member of society, a being abject, degraded and infirm. This poison is alcohol."

At the International Medical Congress in Moscow, in 1897, Dr. Robert Koppe said: "The opinion of alcohol as a useful source of energy in the organism (and therefore a food) in consequence of its combustibility, is not scientifically justified. In consideration alone that a substance is oxidized in the body, in nowise justifies its use as an energy-furnishing food. Morphine, as is well known, burns in our bodies into oxide of morphine. Happily, however, it has not occurred to any one to proclaim it for this reason a proper source of energy (a food) for the human organism, as is unfortunately done in the case of alcohol."

Much has been said and written as to whether alcohol is or is not a poison. The statements of those just quoted would not prove alcohol a poison, but would only prove their belief that it is a poison, unless there is something definite upon which these statements were made. There is, and that is the reason they were made.

When taken into the system alcohol produces certain changes in the different organs and tissues of the body. Some may be pleased to call it a poison, others may not. That makes no difference. The result is the same, and it is the result we wish to understand, and not someone's definition of a poison. Let us see what kind of a reputation alcohol has among the soldiers. The following evidence is furnished by the Reform Bureau, Washington, D. C.: Chaplain E. H.

House, Fifth Massachusetts U. S. V., Camp Mead, Middletown, Pa., Sept. 22, 1898, wrote: "There is no doubt in my mind that the sale of intoxicating liquors has done more to contribute to sickness, death and trouble of camp life than all other things combined."

"Headquarters 14th Regiment, P. V. I., Camp Mead, Middletown, Pa., Sept. 23, 1898.

"There are many ways that a soldier can ruin himself, but I think the canteen is the most damnable of all. I have never allowed one in my regiment, and I never will."

W. J. Glenn,
Colonel Commanding.

"There is no doubt that the drink-habit works very great injury to the army. It has been shown over and over again that those who endure the greatest fatigue and exposure are men who do not drink."

Wm. B. Rochester.
Brig. Gen., U. S. A.
Washington, D. C. Retired.

How insignificant Prof. Atwater's experiments look by the side of such crushing evidence. Let us see what kind of a record alcohol has in the navy.

Rear Admiral Sampson, in a published interview, said:

"I think that there is but one opinion among

officers of the navy about grog. And it is that alcoholic liquors have no place in the navy of the United States, except as medicine. Intoxicating liquors of all sorts should be abolished."

"The man who needs the stimulus of alcoholic liquor to enable him to perform his duty is not to be trusted in any capacity. In my experience of nearly fifty years, as an officer in the United States Navy, I think I can say that ninety per cent of all punishments inflicted on board ship that have come under my observation, can be traced directly to rum."

I. H. Gibbs,
Commodore, U. S. N.

Alexandria, Va.

A long list of others might be added, all giving the same evidence.

The well known Dr. Wm. F. Crafts, in an address delivered in Octobear, 1899, said:

"Every dollar spent for books, thirty-eight cents goes for labor."

"Every dollar spent for hats and caps, thirty-seven cents goes for labor; and so on through the list.

"Every dollar spent for beer, only two cents goes for labor.

"Every dollar spent for whisky, only one cent goes for labor.

"This means, that if the money spent for drink was spent for the twenty chief comforts of life,

one and one-third million more men would be employed, and the farmers would get four hundred million more for raw material, etc."

Most railway managers forbid their employes to drink while on duty.

The Chief of the Massachusetts Bureau of Labor, in his twenty-sixth Annual Report, by order of the State Legislature, as to the influence of intoxicating liquors in promoting crime and pauperism, says that of the paupers in the state, sixty-five and one-fourth per cent were known to be addicted to the use of intoxicating drinks; and that eighty-two per cent of the criminals were "in liquor" at the time of committing the crime, and ninety-four per cent of criminals were addicted to the use of liquor. Fifty-one per cent of the insane were addicted to drink.

Dr. Crafts says twenty-five per cent of those aided by charity organizations and societies, outside of poorhouses, owe their poverty to the personal use of liquor; and thirty-seven per cent of those found in almshouses owe their condition to the personal use of liquor.

Fifty-one per cent of the paupers go to the poorhouse by way of the saloon, and seventy-two per cent of crime in license states, and thirty-seven per cent in prohibition states, is due to drink.

J. J. McCook, of Hartford; John Burns, labor leader in British Parliament; Charles Booth, chief authority of the poor in London; Chas.

Doring Bace, who could speak with like authority for New York, and Edward Everett Hale, founder of more charitable societies than any other living man, all these tell us that alcohol is the chief cause of poverty.

One hundred military officers, Lord Wolseley, Lord Roberts, Lord Kitchener, and ninety-seven American commanders, including every one that has ever spoken on the subject, with the notable and welcome exception of Egan, have condemned even beer."

The well known Dr. John M. Shaller, Professor of Physiology and Clinical Medicine in the Cincinnati College of Medicine, etc., etc., in part says in *The Alkaloidal Clinic* for March, 1901:

"In over twenty years' practice I cannot remember a single case where I felt that the patient needed alcohol.

"In cases of typhoid fever prolonged as they sometimes are for a number of weeks, the digested foods, particularly Peptonoids, Bovinine or any similarly prepared food, are of a great deal more value than alcohol possibly can be.

"There is one very important feature which should prevent physicians from prescribing alcoholics, and this one reason alone is sufficient to prohibit its use entirely. I refer to the awful pathologic conditions that are daily observed in the post-mortem rooms. There is not an organ or tissue in the body that escapes its terrible rav-

ages. A remedy that is so productive of disease should not be used for the cure of disease.

"The thought has found favor that in a sense alcohol is one of the physician's best friends. If you look at it from a business point of view, it certainly does make a great many patients for him, not only in the consumer himself, but in the children of the consumer. At least one-third of all idiots are a direct product of drinking parents. Fully twenty-five per cent of the insane are insane through heredity of drink, while many of them become so through drink.

"A remedy must be an extremely dangerous one that can produce such awful results. A remedy that has such a fearful history back of it, whose victims fill the insane asylums, to say nothing of all of the criminals, seems to me to be a remedy that is best left alone.

"That it is possible to practice medicine successfully without alcoholics can be verified by thousands of physicians in this country today.

"Alcohol circulates in the blood as alcohol and in this diluted state it comes in direct contact with the tissues and inflames them.

"There are many who cannot taste liquor without becoming heavy drinkers. This taste has frequently been started in the sick-room and under the advice of physicians.

"When in a depressed state, exhausted mentally and physically, alcohol does brace and cheer one

up, so does opium, so does cocaine, so does tobacco or any other narcotic.

"There are some remedies without which some physicians cannot practice medicine successfully. Alcohol is one of them. Some physicians would be utterly at sea if alcohol could be no longer obtained—for their patients, of course.

"Alcohol produces more disorder, and makes more sickness, hereditary and acquired, than all other medicines or other substances voluntarily taken by the human being. It makes more insane, more idiots, more criminals, more sorrows and misery, than all other influences combined.

"I repeat that in over twenty-two years of active practice I have very rarely used alcohol. I cannot recall a serious case in which alcohol could have possibly been of any assistance, nor can I recall a fatal one which alcohol could have saved.

"In nearly every case where consultation was called, about the only change that was recommended was that brandy or whisky be given, and in none of these cases was there any benefit obtained."

The following appeared in the CLINIC of July, 1899, and is from the pen of one of our leading physicians:

"Our nation spends $1,200,000,000 every year for liquor!

"Tariff revenue and silver products look small when compared with that appalling fact. The

politicians are disputing about a tax of $5.00 per head, the cost per person of running the entire government of the United States, while it costs us for liquor alone $15.00 per person. The whole tax-bill, including federal, state, county and town taxes, is not equal to our liquor-tax bill.

"What unspeakable poverty and misery this represents! But viewed in its commercial aspect merely, it is one of the most tremendous facts conceivable. It means that business obligations are not met, rents are repudiated, merchants' bills are ignored, physicians' services unpaid, and a multitude of able-bodied men are rendered less capable of the best service. If we could only stop up this enormous leak by letting liquor alone the good times for which the nation sighs would dawn to-morrow."

"If we as physicians could help to abolish this traffic we should be accessory to the greatest good that could come to humanity and should have money to burn."

The foregoing is given to prove the general sentiment of physicians and others, quite as capable as Professors Atwater and Chittenden; and who have had far greater experience among those who use alcohol. Such evidence makes the experiments of the Professors look small and mean. It leaves nothing interesting or practical.

The man who takes a drink of whisky feels a sense of animal exhilaration. He believes he is stronger physically, but he is not. He believes

he is more capable, can accomplish more, endure more, but he cannot. Physically and mentally the man is less capable. There is loss of bodily vigor and mental power.

The solution of this is very simple. Every one understands that alcohol produces a loss of sensation, a paralyzing effect upon the system. This is proven by every man under the influence of liquor. Alcohol paralyzes the nerves, whose divided fibers supply the muscles, and by reason of this lowering tendency, the muscles are unable to act up to their full capacity, hence they are weaker, the heart is weaker, respiration is weaker, circulation is weaker, the temperature is lower.

In cold weather many people take alcohol to keep them warm, yet alcohol does not keep them warm, but it does just the opposite. It lowers bodily heat or temperature, and for the following reasons: It absorbs the water from the blood-corpuscles and they become shrunken. The red corpuscles, the oxygen-carriers, lose their power to absorb oxygen in their passage through the lungs, and this lessens tissue change, the muscles of respiration are weakened and less oxygen is taken into the lungs. This also lessens tissue change. Both these conditions aid in lowering temperature because bodily heat is maintained by tissue-change. The brain becomes clouded and dull, rendering all the tissues of the body less

active. This also aids in lowering the temperature.

True, the man may appear more active, and indulge in many idiotic notions, yet he lacks power just in proportion to the amount of alcohol taken.

Lying just beneath the skin is a dense network of vessels estimated to be capable of holding one-half of the blood in the body. Alcohol paralyzes the nerves governing the size of these vessels and they dilate; this brings more blood to the surface, it is spread out and cooled in a wide sheet of superficial circulation, and then returns to absorb more heat from the internal organs. This increase in superficial circulation increases the tissue-change and the temperature on the surface gives a false sense of warmth, but the internal organs are being continually robbed and the heat evaporates as soon as produced. By placing a thermometer under the tongue of any one under the influence of alcohol it may be proven that the temperature is lowered. With this false sense of warmth, a deluded brain and the nervous system benumbed by the paralyzing effects of alcohol, many a man has gone out in winter to freeze to death.

In some cases, and for a short time, small doses of alcohol may stimulate the flow of the digestive fluids of the stomach, and digestion may be improved. The alcohol reaching the circulation is partially oxidized, though not all, for ten per

cent is eliminated by the lungs and kidneys. Yet any benefit derived is soon replaced by a condition exactly the opposite; for the stomach becomes unhealthy, the digestive fluids are changed, digestion is interfered with, and a general lowering of the vital forces results. True, some can continue the use of alcohol longer than others and with less ill effect, but if continued the same result awaits all consumers. The continued use of alcohol, even in small quantities, institutes the fibrous changes which characterize the degenerations of old age, and which are mentioned later. It consumes vitality, sometimes at a galloping pace.

At the same time the brain is lulled into a state of semi-consciousness, and now fails to note the ravages going on in the body. The special senses are first perverted and then blunted. Intuition, or the perception of truth without conscious reasoning, is lost, and judgment is rendered unreliable. Alcohol destroys all that is worthiest, for which civilization has so long striven.

It has been stated that alcohol absorbs water from the red blood-corpuscles; also from all the tissues of the body, and it coagulates the albumin in both blood and tissue, thus robbing the system of its natural elements. Alcohol does not "cook" the albumin, as claimed by some temperance lecturers, who place in a glass a quantity of egg albumin, and then holding the glass up to view invite the attention of the audience while they pour

in alcohol. Albumin is about eighty per cent water and twenty per cent solid matter. Between the alcohol and the water there is a strong affinity, or power of attraction. This is one of nature's forces, and when the alcohol is added the water separates itself and unites with the alcohol, This leaves the solid portion of the albumin in a coagulated form. Any change in appearance is caused in this way.

At first the alcohol increases the cerebral circulation, by dilating the arteries in the brain, the same as those on the surface of the body already described. The brain contains more blood, hence is more active, yet nerve-sensibility is depressed and blunted.

This is true of both the motor and sympathetic nerve-systems, and is proved by a loss of control, showing the effects on the motor nerves; while the flushed face, inflamed eyes and red nose prove its paralyzing effect upon the sympathetic nerves, whose branches control the size of the blood-vessels, but now that they are paralyzed by the effects of the alcohol the vessels dilate, producing the flush.

No one ever heard of a nose painted with water-colors.

The odor of alcohol is plainly detected in the breath of the consumer, proving that the professors were mistaken in saying that "all the alcohol is oxidized in the system."

"Alcohol is the most pernicious of all poisons.

Its action is progressively and continually harmful and destructive. There is no such thing as temperance in the use of alcohol, whether whisky, beer or wine, and the daily consumption, large or small. The result is the same. The only difference is the time required to burn out the constitution. The sapping of the vital forces is going on all the time."

Alcohol is an excitant and a depressant. It destroys vitality by first arousing and then depressing sensation and emotion. Chloroform and ether do the same thing. Alcohol abuses and weakens the nervous system, thus causing a predisposition to disease, and aggravates disease after it has obtained a foothold.

Pneumonia is notoriously fatal in drunkards.

The well-known Steel's Physiology says, page 146: "Mr. Huber, who saw in one town in Russia 2160 persons perish with cholera in twenty days, said it was a most remarkable circumstance that persons given to drink have been swept away like flies. In Tiflis" (a Russian city) "with twenty thousand inhabitants, every drunkard has fallen—all are dead, not one remains."

Through the destructive action of alcohol upon the nervous system it may cause hysteria, chorea or St. Vitus' dance, epilepsy, neuralgia, inflammation in any part of the body, cramps, convulsions, paralysis, melancholy, rheumatism, gout, Bright's disease, cancer, consumption, par-

tial or complete insanity, delusions, hallucinations, delirium tremens and death.

Tobacco and indigestion may do the same thing. Alcohol irritates the mucous membranes throughout the system, and if continued this leads to chronic inflammation. In all cases the heart, lungs, liver and kidneys become permanently diseased sooner or later, and ultimately death is the result.

The man who dallies with alcohol is most certain to form a pernicious habit, which he may be powerless to break, and which slowly and insidiously robs him of his reserve vitality. He may not see or feel the draft on his forces, because no emergency occurs to test his strength, but the drain is going on all the same. This gradual leakage, if invested in good habits and right living would add twenty-five years to his life, and enable the individual to hand down a constitution untainted by vice or physical infirmities.

Alcohol dwarfs a man, mentally, morally and physically. It is responsible for many crimes, vices and diseases. When the spree is over, the temporary oblivion of the cup must be paid for, in bodily suffering, in unfitness to discharge individual responsibility, in a haunting sense of unworthiness, in the disgrace and unhappiness of those depending upon the drunkard, in the disapproval of society, and in the gradual loss of all that constitutes true manhood.

Many of the medical profession have coun-

tenanced the indiscriminate use of alcohol. They have prescribed it for their patients, and have looked on complacently while young and old have inflamed their passions, clouded their judgment and confused their moral sense, thus forging fetters of imperious habit to drag down and chain the forces of manhood. Physicians cannot disclaim moral responsibility. Ignorance or carelessness is no excuse before the law.

Many physicians feed their patients whisky. Some give large quantities to small children. Such treatment is degrading and demoralizing to the practice of medicine. Many use it because of their ignorance, as they do not know what else to give. Others use it themselves, and naturally feed it to the sick.

Many use it in "sinking spells," or when the "fever turns." Fever is caused by poisons generated in the body. These poisons so irritate the nervous system that it cannot properly control the tissue-changes, repair and waste; and having escaped nerve-control this change takes place more rapidly; hence the increase in temperature or fever. Fever is always caused in this way.

As stated elsewhere, every chemical change produces a certain amount of heat. That is a universal law. The changes which are continually taking place in the body are chemical changes, and they result in the formation of many new compounds; and the heat thus produced maintains the natural temperature of the body.

When the system is irritated by poisons from any cause the nerves become more or less paralyzed, lose control and the tissue-changes take place more rapidly, hence the fever, as stated.

It is possible that when the poison is all eliminated, the patient, freed from this irritant, may settle into a more quiet state, more quiet because more natural, but there is no danger of death. Is that true, or not; and why? True; because the patient, being relieved from the poison in the system and freed from the constant demands of a fever, is in a much better condition, and usually needs only to be let alone, with the exception of intelligent feeding. Disease, any disease, is caused by poisons in the system; and it is good sense to believe that the danger is when the poisons are present and not after they have disappeared. A man is mistaken when he says the "fever turned at twelve o'clock last night, and if we had not given the man whisky he would have died." If a stimulus was needed there are remedies quicker and more powerful and more lasting than whisky. The attitude of the physician who uses alcohol is responsible to some extent for the belief that alcohol is a tonic.

When a man drinks alcohol he feels stronger. It has been stated that he is not stronger, but weaker. Is he stronger or not? Let us look at it in another way. If alcohol stimulates a man, and makes him stronger, as the friends of alcohol claim, then the man can walk better, his step will

be firmer and his mind clearer. Is that true? No. Every one understands perfectly well that under the influence of alcohol restraint is thrown aside, self-control is lost, speech is at first bolder, later it becomes incoherent and words are jumbled together. This is the effect of alcohol upon the mind. Reason and judgment have been dethroned.

What about the physical strength? Is the man stronger?

No. His trembling hands and unsteady gait, which later becomes staggering, are all the evidence needed to prove that alcohol weakens a man physically as well as mentally.

Let us view it from another standpoint: The human body is composed of vast numbers of little particles of matter called cells. The temperature of the body is maintained by tissue-change, as stated, i. e., by elimination of waste and worn-out particles of matter, and their replacement with new. This requires of each and every cell a certain amount of work, which keeps it in good health. The change is sometimes called oxidation because from the air we breathe a certain amount of oxygen is absorbed, carried through the circulation, unites with certain elements and aids in producing the change, and the change produces heat. The friends of alcohol claim that when alcohol is taken into the system, it readily unites with the oxygen, produces heat and thus proportionately the tissues of the body are saved.

Hence they claim alcohol is a fat producer. Is that true?

Every organ and every cell in the body is constantly being stimulated by the removal of waste or worn-out matter, and replacing it with new. normal cell stimulation is a physiological or natural action, as in the assimilation of food. But stimulation from alcohol or other poisonous matter differs, as it gives no nourishment or support, hence there follow destructive changes and fatty degenerations, i. e., many cells of the kidneys, liver and other organs change to fat, and thus the organ is proportionately weakened. Every pathologist in the land can testify that this is the kind of fat which alcohol produces. The author admits the truth of the claim that alcohol is a fat producer, but when we remember that the fat is formed at the expense of healthy tissue we find another reason why disease is more dangerous in drunkards, and why the man is less able to withstand physical strain. The cells which constitute the different organs and muscles of the body are not alone weakened, but the cells of which the nerve fibers are formed are also weakened and shattered. This is proven by the tremor of the drunkard.

True, the user of alcohol may appear more fleshy and actually weigh more. Yet the flesh is unhealthy and lacks vitality because its nerve-supply has been interfered with, hence is easily overcome. The flesh produced by alcohol is a

mushroom growth, and as unstable as the gourd which is said to have grown in a single night to shade the Hebrew prophet.

A stimulant is something that excites or increases temporary action.

A tonic is something that gradually yet permanently restores a weakened body to its natural strength, something that will increase nutrition, build up and restore the old time vigor.

The friends of alcohol do not claim it is a tonic, only a stimulant. Is alcohol a stimulant? Under the effects of alcohol the heart may act in an excited manner, and the whole nervous system may become agitated, but this does not mean an increase in strength. It means a loss of strength. Is alcohol a stimulant? The sphygmograph, an instrument which, if placed over the heart or an artery, will by means of a recording lever mark the rate and force of the action or character of the pulse. This test shows the heart to be weaker after the use of alcohol. The contractile power of the heart is lessened. Large doses not only show a decided weakening but demonstrate that the heart-cavities are distended, showing that the heart is able to contract but partially.

All movements are produced by the action of cell-protoplasm. A muscle-cell will not contract unless stimulated by a nerve-fiber. Alcohol does not stimulate but paralyzes all nerve-fibers. The heart is composed of protoplasmic muscle-cells

under the control of nerve-fibers. Alcohol paralyzes these fibers and thus weakens the heart-action, the same as it weakens all other tissues and organs. It does this in proportion to the amount taken. It weakens the muscles of respiration, which surround the chest. Every fiber of these muscles is weakened by alcohol, and respiration is correspondingly interfered with, as described.

The friends of alcohol do not claim it to be a tonic, only a stimulant. If alcohol is a stimulant, chloroform is a stimulant. So is ether. Both chloroform and ether produce what doctors call a stage of excitement.

If alcohol is a stimulant, it is not so powerful a stimulant as ether. Either alcohol, chloroform or ether first acts as an excitant, then a depressant.

Their secondary effects are narcotic, all producing sleep if taken in sufficient quantities. That is why alcoholics require more chloroform and ether to anesthetize them. The brain has become accustomed to the narcotic effect of alcohol. This class of patients do not bear anesthetics as well as others, because the alcohol has irritated, weakened and shattered the nervous system. There is no evidence that alcohol is a stimulant, and many people who use it as such do so without thought or inquiry.

Again, there are drugs more powerful, more

lasting and more certain, hence there is no excuse for using alcohol.

The following is a more detailed description of the effect of alcohol upon the human system. The statements are not overdrawn, the object being to give the facts. All consumers do not suffer alike. It is said that some men can drink whisky during the whole of their natural life. If this is true such cases are rare, and for every one that occurs thousands go down under the influence of alcohol. In the following pages the full penalty is given.

The first effect is upon the salivary glands of the mouth, but this is of such minor importance that it will only be mentioned. The alcohol is absorbed direct from the stomach into the circulation. The veins of the stomach empty directly into the liver, and the alcohol is carried to that organ where it passes through the capillary network of vessels. The veins of the liver empty into the ascending vena cava, a large vein which empties into the right side of the heart. From here the blood is sent through the lungs and returned to the left side of the heart, and from there it is sent through the general circulation.

Having traced the course taken by alcohol in the system, let us see what its effects are upon the different tissues and organs. The first effect of alcohol is upon the nervous system, and those nerves which control or govern the size of blood-vessels become paralyzed and the small vessels

become relaxed and dilated. Hence all the organs are flooded with blood, which they do not need. This produces congestion, and if continued results in a low form of inflammation. In health the blood exudes or passes out through the vessels and bathes the surrounding tissues and organs, supplying nourishment to all parts of the body. During the inflammation caused by alcohol this exudate is much greater. At first the nourishment is somewhat increased, though not in proportion to the exudate, because the alcohol acts as an irritant. The cells and organs receiving this increased blood-supply become larger, and as a result new cells begin to form. They develop by a division of the parent cells, and thus there is an increase in tissue. This new growth lacks quality, as alcohol is never a true tonic. The individual is bloated and the flesh is flabby. The effect is deceitful and superficial, and the alcohol steadily saps the vital forces and undermines the constitution.

The new tissue mentioned is a form of connective tissue. It first appears in the form of small round cells. These elongate, and are called spindle cells. As the change continues they become more delicate, and histologists call them fiber cells. Having fully developed, they contract, becoming hard and fibrous. As naturally supplied, connective tissue acts as a framework for all the structures of the body. It develops with the growth of the individual, but when

resulting from inflammation it invariably contracts, and this fact renders it pathological or diseased. As the contraction continues, the unyielding pressure on surrounding tissues entangles all structures. Commencing with the stomach, where the first effects of alcohol are produced. The mucous membrane is covered with little glands. These are thimble-shaped depressions and are lined with a layer of specialized cells, which collect from the passing blood-stream certain materials and transform them into the digestive ferments. These little glands are squeezed and pressed out of shape. Some are entirely obliterated, others are closed, the openings of others are narrowed or closed, and they become useless. Many glands that are not destroyed may have some of their secreting cells destroyed.

Blood-vessels are caught in the contracting fibers, and the circulation lessened or shut off, and the part supplied by such vessels atrophies (shrinks). Degeneration follows. As this change continues, the mucous membrane and deeper tissues of the stomach continue to thicken and harden. The secretions are changed in quality and quantity, the digestive fluids are lessened, the delicate membrane of the stomach first becomes thickened, and later, in places, the first layer of cells of this membrane, which are called epithelium, are piled up in polypoid growths, i. e., appear like little tumors, giving the surface an

uneven appearance. In other places the mucous membrane may be replaced by new connective tissue. Where the change is complete the walls of the stomach are thinned, as much of the natural tissue has been destroyed.

The stomach may be dilated and may contain more or less fluid. It contains too much mucus, and chronic dyspepsia is the result. This is proven both by post mortem examinations, and by the morning vomiting of drunkards. There is no cure.

The same change takes place in other parts; first in the liver, because the alcohol is carried direct to that organ. It reaches the liver in the pure state. The changes in the liver are practically the same as in the stomach, and the cause is the same—chronic inflammation. The liver is formed of many little lobules held together by connective tissue. This connective tissue framework penetrates all parts. Under the influence of alcohol-drinking there is first an overgrowth and then a shrinking of this framework. As stated, connective tissue resulting from inflammation always shrinks. This is responsible for the gradual destruction of the organ, and the diseases which follow.

During the early stages there is congestion and then inflammation, later there is increase in the connective tissue. Together this causes enlargement. The edges of the organ are rounded, smoothed and thickened. The cells may also be

swollen and enlarged by fat, which may be deposited in them at this time. With the increase of the connective tissue new blood-vessels form. These are derived from the artery that supplies the liver. If a cut surface of the liver could be examined at this time, the connective tissue overgrowth would be visible to the naked eye. The remaining lobules of which the liver is formed would so contrast with the new tissue as to present a granular appearance.

Jaundice is usually slight, as the bile capillaries, or channels through which the bile flows, are interfered with but little. In health these capillaries or channels have their origin between the cells that form the little lobules. Gradually these cells are obliterated and thus the bile capillaries or channels are made larger. A greater reason for the absence of jaundice is the destruction of the cells that manufacture the bile, such destruction being the result of pressure from the new tissue growth, and later its contraction.

The contracting fibers of the new tissues enclose within their meshes the more active cells, those of the little lobules. These maintain their individuality longer than other cells of the lobule, then disappear. There is an increase in connective tissue, not only between the lobules but between the cells that form the lobules. At first this change is most marked at the periphery of each lobule, later the center of the lobule is also invaded and replaced by connective tissue

overgrowth. At first this change may cause a slight increase in the bile capillaries mentioned. Later they become fewer in number and larger, as stated. The contraction of the new tissue not only destroys the liver cells, but obliterates many small blood-vessels, and the digestive work which in health is carried on by the liver is interfered with, a lack of nutrition is the result, and gradually the whole organ is decreased in size, such decrease being in proportion to the amount and contraction of the new tissue. This is called atrophy (wasting). The surface is shrunken irregularly, the edges are nodular; the hardening is most marked along the front edge because it is thinner, and more in the right than in the left lobe, because it is larger.

The shrinkage of the liver prevents more or less the return of the blood that passes through it. This return circulation comes from the stomach, digestive tract, spleen, etc.; and as the blood is forced back to these organs, congestion and inflammation may follow. The patient may vomit blood (seldom). There may result chronic dyspepsia, diarrhea, enlarged spleen, piles, abdominal dropsy, or more than one of these conditions may exist at the same time. This disease is called cirrhosis, or sclerosis of the liver, meaning a hardening. It is also called hob-nailed liver, rum-drinkers' liver, whisky liver, etc. With the single exception of syphilis, this disease can only be produced by alcohol, and is frequently

met with in habitual drinkers. During the early stages of inflammation liver abscess may form. Death may occur in the early stages before the liver has had time to shrink. There is no cure for this disease.

It has seemed important to state clearly the effects of alcohol, therefore its action upon the liver has been given in full. The effect of alcohol upon the kidneys is much the same as upon the liver, and is the most chronic of all forms of kidney-disease.. The blood-vessels supplying the kidneys are large in proportion to the size of the organ. This subjects them to a proportionately large amount of the irritating effects of alcohol, hence their great liability to disease.

Through the circulation, the irritating effects of alcohol first produce congestion, and if continued a low form of inflammation. At first the kidneys are somewhat enlarged, later they are greatly reduced in size and their function or power to act is largely destroyed. Like the liver the kidneys have a connective tissue framework, which penetrates the organ in all directions. The low form of inflammation produces an overgrowth of this framework, which later contracts and destroys the organ. The shrinkage is mostly marked at the convex or outer portion, because it contains the most connective tissue.

The first effect of alcohol upon the kidneys is upon the secretive cells which line the collecting tubes, because in their efforts to remove from

the circulation the irritating products of alcohol, these cells become overworked, and the blood, which is always defective in alcoholics, affords poor nourishment; hences the shrinking of the collecting tubes and their dilated extremities, which are called glomeruli, is among the earliest changes.

Following close upon this change are the thickening of the arteries and the increase of connective tissue. With such increase the capsule, or thin membrane which envelops the kidneys, becomes thickened and firmly adherent to the surface of the organs. The contraction of the new tissue constricts some of the collecting tubes, and the distal or outer end may continue to secrete or collect from the passing blood-stream, and there being no escape for the fluid the little tube becomes dilated, and thus small cysts or sacs are formed. These may vary in size from a millet-seed to a small marble.

The contracting fibers close around the glomeruli, or dilated ends of the collecting tubes, and press them together in groups or bunches. Some are destroyed, being converted into a solid mass of connective tissue, the delicate blood-vessels which fill them during health having been wholly obliterated. Others only show a thickening of the connective tissue capsule which enclose them. At the periphery or outer surface there may be only new cell-formation, some round, others spindle-shape, or partially developed. The glom-

eruli may contain coagulated plasma, or the fluid part of the blood, which now somewhat resembles starch. Some may contain pus. Some of the collecting tubes are destroyed, others are surrounded or embedded in connective tissue overgrowth. These are irregularly dilated, the contracting fibers which surround them have drawn them outward. Some are filled with cells—the secreting cells which line them. These have been pressed out and are in all stages of degeneration. The nucleus or central body of some of these cells may be distinguished, but the outlines of the cells are lost. The whole organ is shrunken, the cortex or outer portion is nearly obliterated. This is called sclerosis. It is one form of Bright's disease, and is most often produced by alcohol.

With this form of Bright's disease there is little or no dropsy; with other forms there is dropsy from the first. All forms may be produced by alcohol.

The heart is enlarged, and the muscle-fibers of the small arteries throughout the whole body are increased, as a result of the extra strain upon them. Blood cannot circulate freely through the kidneys, as many small vessels have been destroyed, hence it is crowded into other channels. This renders them full and tense, and the heart-beat is increased in proportion. These changes will be considered next.

Atheroma is the name given to degeneration of the walls of the arteries, i. e., many cells

change more or less to fat. This is caused by a low form of inflammation, long-continued. The arteries are formed of three membranes or coats, the inner, middle and outer. They are not nourished by the blood that flows through them, but are supplied with a separate system of blood-vessels. Between the middle and inner coats is a layer of connective tissue, and it is this connective tissue layer which shows the first effects of chronic inflammation produced by alcohol. The connective tissue becomes thickened and swollen, and new cells form. This new growth, and later the thickening of all the coats of the arteries, lessens their size. The opening becomes smaller. The circulation is lessened in the system of vessels which nourish the arteries. The blood is poor, the contraction of the newly-formed tissue causes pressure, and together this is abundant cause for the arteries to lose their "tone," and become soft and flabby, infiltrated with or changed to fat.

Following this change, the middle or muscular coat is affected next, because it does the most work. Elasticity is destroyed, and the surrounding tissue lacks nourishment. The small arteries are liable to have all their coats affected, because they are thinner. These arteries are most liable to rupture, and less liable to recover should injury occur.

While in this condition the cells constituting the arteries are unable to exert their selective

power, and lime salts are frequently deposited. These salts are always present in the circulation, but in health are prevented from entering the walls of the blood-vessels. Any disturbance of the nervous system leaves the tissues without proper support, and the individual cells lack intelligent guidance. They are unable to absorb proper nourishment. The large arteries are comparatively free from danger because their walls are thicker and stronger. The medium sized arteries are most affected, those of the upper and lower extremities and those supplying the brain. As stated, the middle or muscular coat of the arteries is affected first, because they do the most work. Their activity and poor nourishment destroy their vitality. The lime salts which are deposited may involve the whole of the middle coat, or occur in patches. The external and internal coats may also be included, and ultimately the vessels become changed into a hard brittle tube, like the stem of a clay pipe.

In amputation such arteries are secured with difficulty, as the ligature or thread with which they are tied is liable to cut through. This condition of the arteries is the principal cause of apoplexy, as in their diseased condition any strain, heavy lifting, or sudden bending forward, may so increase the blood-pressure as to cause rupture of such vessels in the brain.

Apoplexy may follow Bright's disease. The kidneys are small organs, yet because they con-

tain such a number of blood-vessels, and because much blood passes through them, when the circulation in these organs is interfered with, much blood is forced back toward the heart, and this organ has so much extra work to do that it becomes enlarged. At first it beats with more force to meet the increased demands made upon it. This produces more strain upon the arteries, and exertion at this time may cause one of the diseased vessels to snap like a glass tube. This usually takes place in the brain, and is the cause of apoplexy. The patient loses the power of motion, sensation and consciousness, falling and lying as if dead. The hemorrhage causes pressure and more or less destruction of nerve-fibers. If in a vital spot, death results.

In health some of these nerve-fibers are continued downward and aid in the formation of the spinal cord. That part of the cord formed by these fibers is called the motor tract, because through this tract the brain sends the order or influence which controls the action of voluntary muscles, i. e., those muscles under the control of the will; but the hemorrhage has destroyed some of these fibers and caused pressure upon others. There has been a wreck and the nerves are unable to act, and paralysis is the result. The track must be cleared before traffic can be carried on.

The brain is divided into two lateral halves, and the hemorrhage occurs only upon one side,

hence but one side of the body is affected. The fibers forming the motor tract cross at the base of the brain, hence the side of the body that is paralyzed is opposite to that on which the hemorrhage occurs. The hemorrhage usually occurs on the left side, because on this side the circulation is more on a direct line from the heart, therefore the pressure is greater.

Occasionally the paralysis and loss of motion are slight at first and the patient retains consciousness, yet the hemorrhage may be persistent and increase slowly. These cases grow gradually worse and end fatally. "In the center of the clot there is coagulated blood and brain-matter in varying quantities, according to the severity of the hemorrhage. In the center of the clot is the ruptured vessel. The clot produces inflammation and is followed by the escape of serous fluid into the surrounding tissue. This increased nourishment and lack of nerve-control results in a new connective tissue growth, which encloses the clot. Later the clot degenerates, softens and is absorbed, leaving the patient greatly improved. The absorption is gradual, so is the improvement.

"Sometimes the brain-substance around the clot degenerates, producing localized softening.

"The torn nerve-fibers are not replaced, and this explains why paralysis from apoplexy may be followed by improvement, but never by complete recovery."

Permanent loss of function corresponds to the number of nerve-fibers destroyed.

When the arteries are diseased and relaxed, as described, an aneurism may form. This is a tumor of an artery. First there is weakness at a given point, and the blood-pressure causes a bulging, and with every heart-beat the blood is driven into this pouched-out process with increasing force, because there is no outlet. As it enlarges it receives more blood and suffers more pressure. The tumor continues to grow until the vessel-wall becomes so thin that it ruptures. This occurs in large vessels, and rupture is followed by rapid death.

While an enlarged heart and powerful heart-action may aid in producing apoplexy, aneurism, etc., it should be remembered that this condition of the heart is not permanent. Over-action and increased blood-supply result in inflammation and new tissue growth in the heart as elsewhere.

The delicate membrane which lines the heart-cavities may become inflamed and destroyed. This often follows inflammatory rheumatism, and may follow the use of alcohol. In health this membrane and that lining the arteries have the power to prevent blood-clots. If destroyed, blood-clots form. Such a clot is called a thrombus. A clot may become detached and carried by the circulation to the brain, may enter an artery too small for its passage and lodge; that is called an embolus. The artery being plugged, that part of

the brain usually supplied by this artery degenerates from lack of nourishment. This constitutes softening of the brain. An abscess may form (rare.)

"The softened structure presents no distinct outline, but passes insensibly into the surrounding tissue. The nerve-cells suffer first, next the nerve-fibers. These are merely prolongations of the cells. The cells which suffer next constitute the gray matter of the brain, and last the connective tissue framework and blood-vessels degenerate, the whole appearing as broken-down fibers, granular matter and fat. Later all traces of structure disappear, having been carried away by the circulation." Softening of the brain may occur whenever nutrition is interfered with.

The aorta is a large artery and forms the great trunk of the arterial circulation; the lower left ventricle or cavity of the heart opens into this artery, and in health this opening is guarded by the aortic valve. This valve may become inflamed, connective tissue may form, or lime salts may be deposited. In either case the valve becomes rigid, it cannot be pressed back but remains constantly in the way of the current, and interferes with the amount of blood sent out; this is called aortic stenosis.

The heart is supplied by two arteries called the coronary; they branch from the aorta just as it leaves the heart. In cases of the diseased valve just described, the coronary arteries re-

ceive too little blood, and the heart is poorly nourished. Besides this the blood is septic—unhealthy. Either condition is sufficient to produce fatty degeneration, and when occurring from one or both of these causes, the whole organ is affected.

In health the mitral valve guards the opening between the two cavities in the left side of the heart. The same changes may occur in this valve as those just described in the aortic valve. These valves are formed of picked-up folds of the delicate membrane which lines the heart-cavities. When lime salts are deposited the valves are unyielding and stand in the way of the flow of blood as described. When there is new connective tissue, and this contracts, the valve becomes shrunken and will not fit the opening. When the valves fail to open and this interferes with the current, it is called stenosis, or narrowing. When the openings are improperly closed and the blood is allowed to flow back past the shrunken valve, it is called regurgitation.

The valves in the right side of the heart, the tricuspid and pulmonic, are seldom affected, because the right side of the heart has only to receive the blood from the return circulation and send it out through the lungs, while the left side receives it back from the lungs and must now force it out through the whole arterial system; hence there is more strain on the left side and more liability to disease.

When a valve becomes rigid from a deposit of lime salts, there may be both stenosis and regurgitation at the same opening. When the heart is first affected, the over-action and increased blood-supply may cause inflammation and new connective tissue growth in the substance of the organ. Later the contraction of the newly-formed tissue causes pressure upon many muscle-fibers, and they lose their striation and degenerate. The heart and all voluntary muscle-fibers show light and dark lines. This is called striation. Many small vessels are obliterated, and this lessens nutrition still more, and fatty degeneration follows, i. e., more or less of the heart-muscles turn to fat, the organ becomes soft and flabby, and the surface mottled by light streaks of the new connective tissue and darker streaks of the heart-muscle. Inflammation of the heart-muscle usually follows inflammation of the membrane which surrounds the heart; this membrane is called the pericardium. In this case the inflammation may occur on all sides alike. The inflammation may extend from that of the membrane which lines the heart-cavities. In this case it would occur on the left side first, because this side has the most work to do, hence is most affected. The cavities on the right side are seldom affected. In either case, the inflammatory process would occur by extension, and would first involve the nearest muscular fibers, or those lying in contact with the membrane.

Fatty infiltration of the heart may follow inflammation of the pericardium. The fat, which is always found on the surface of the organ, finds its way between the muscle-fibers, displaces and compresses them, diminishes the blood-supply, and interferes with the contractile power of the organ. This interferes with nourishment and fatty degeneration of the heart-muscle follows. As stated, fatty degeneration may occur in any case where nutrition is interfered with. All of these heart-changes may and often do result from the use of alcohol.

Upon the brain and spinal cord, alcohol produces the same effect as upon other organs or tissues. First congestion, second a low form of inflammation, followed by an overgrowth of connective tissue, and the contraction of this produces hardening as elsewhere.

The contraction of the connective tissue in the brain and cord causes pressure upon the nerves, nerve-cells and surrounding tissue, obliterates many small vessels, interferes with nutrition, and the result is hardening and loss of function. The hardening is called sclerosis. This is responsible for many forms of spinal paralysis, and may be caused by alcohol or other irritants.

At first there is an increase in the blood-supply, the result of irritation; this is followed by connective tissue overgrowth, and later by degeneration. Sometimes one part of the cord is affected, and sometimes another.

Alcohol also produces a low form of inflammation of the mucous membrane lining the bronchial tubes and air-cells of the lungs. This is chronic bronchitis. Alcohol produces the same changes here as elsewhere. At first the mucous membrane is congested and thickened; this lessens the caliber or size of the air-tubes, and the secretions are increased by reason of the increased amount of blood. This produces irritation and cough, and more or less expectoration of thick tenacious mucus. The submucous or deeper tissue become infiltrated with newly formed connective tissue cells; later this new growth which surrounds the tubes contracts, causing dilation. These changes may occur in patches or be extensively diffused. While in this condition lime salts may be deposited in the tubes and mucous membrane, the same as in the arteries, and they lose their elasticity and remain rigid, or permanently dilated. In this condition the secretions may be profuse. At times the color may be greenish, and the odor offensive.

The same catarrhal condition may be produced in the mucous membrane of the digestive tract, causing chronic diarrhea. Chronic catarrh may also result. The alcohol absorbs the water from every part of the body, and this is the reason so much water is needed after drinking liquor. Alcohol also extracts water from the blood-corpuscles, leaving them shrunken.

The nerves and nerve-cells are also atrophied,

or shrunken and hardened. As the brain-substance shrinks, the ventricles are dilated and filled with a watery fluid. The absorption of water causes condensation and hardening of all the tissues. This is most marked in the brain because the brain requires so much blood and contains so much alcohol. The brain is the seat of reason, judgment, memory, emotion, sympathy, charity, love, etc., but the effects of alcohol bring these noble qualities to the brute level.

Delirium tremens is caused by alcohol, which absorbs so much water from the brain-tissues. As the brain shrivels and shrinks, and the vessels become irregular, the optic nerve, or nerve of sight, becomes so drawn and bent that it transmits to the brain tortuous, grotesque and frightful objects, while the excitement of the victim is the result of the poison acting as an irritant. For a time the user of alcohol lives fast in a physical sense, and enjoys animal exhilaration, but while he is doing this the changes already described are taking place, slowly but surely. It is true that it may require several years to produce the change in some people, while in others the same condition is produced in a much shorter time, but sooner or later the changes occur to all who continue the use of alcohol; and sooner or later there is found a physical weakness, loss of appetite, force and energy. At this time, in many cases, even the smell of alcohol will cause a feeling of sickness and sometimes vomiting.

Flushing of the face, so common to habitual drinkers, does not denote health, but is caused by paralysis of the nerves governing the size of the arteries supplying the skin, and they dilate and contain too much blood. If long continued there will be permanent disfigurement, from the contraction of new connective tissue, which surrounds the arteries, leaving them permanently enlarged.

Rheumatism, neuralgia, headache, inflammation of the bowels, peritonitis, pleurisy, inflammatory conditions of the eye, etc., may be produced by alcohol. Many drinkers experience frequent attacks of sore throat, and this trouble may become chronic, while the pathological anatomy of the nose can be studied without a microscope.

The catarrhal condition of the throat may extend through the eustachian tubes to the middle ear, and produce abscess or deafness.

The irritating effects of alcohol can be easily proven by applying it to the back of the hand several times a day. It will soon produce redness and inflammation. It should be remembered that the mucous membrane and tissues of the internal organs are far more sensitive and delicate than the outer layer of skin which covers the hand.

Alcohol absorbs all surplus earnings, gradually undermines the health, takes away pride, ambition and power of doing things requiring quick consciousness, accuracy, and persevering application. It is responsible for the diseased kidney

in Bright's disease, the tremor of the drunkard, and the diseased action of a sclerosed liver.

Alcohol makes drunkards, ruins youth, destroys homes, encourages crime, spreads poverty, disease and death, one hundred thousand filling drunkards' graves every year. Alcohol destroys all delicacy, courtesy, and all the nobler principles of life. The sense of justice and right are gone, and there is no vice into which the victim of drunkenness may not easily slide, and no crime which he may not commit. Between this condition and insanity there is but one step. Eight-tenths of all misery and crime are said to be due to alcohol.

Those who pay fifteen and twenty-five cents a drink for their whisky may be somewhat disappointed, while those whose financial condition compels them to buy cheaper grades may feel somewhat jubilant, to know that the "stuff" is all of about the same quality. The author understands, of course, that there are some who may not agree with this statement, yet it is undoubtedly true; and while much more evidence could be given, the following seems sufficient:

The author is personally acquainted with a bartender in a fashionable saloon, who states that the same price has been paid for every gallon of whisky purchased by his employer during the past two years, and that price was $2.00 a gallon. He says those who paid ten cents and

those who paid twenty-five cents a drink, received the same grade of whisky.

The following experiments and tests are taken from a paper by J. J. McCook, Professor of Trinity College. The quotation does not include the whole paper, which was read before the Twentieth Century Club, and published by the club. Professor McCook says:

"My studies were made upon seventy-three specimens, forty-two of them whiskies obtained as follows: A best quality bought by a well-dressed agent and a cheapest bought by a poorly-clad agent, and a best and cheapest bought by myself explicitly for analysis; at each of four retail establishments of different grades, and at two drug stores of different grades, samples of club varieties and of pure spirits, or the like from wholesalers; eight specimens from the persons of drunken police prisoners; three specimens from clean and ancient pedigree. These were all analyzed in the Trinity College laboratory by my colleague, Professor R. B. Riggs, Ph. D., and were also inspected by taste and smell by two expert judges engaged in the business, and by two amateurs. Of fourteen of the cheapest of these specimens, including seven from prisoners, three were 31.1 per cent. below proof, i. e., more than one-third water; and the mean of all was 17.9 per cent. below proof, or over one-sixth water. A specimen since obtained from a five

cent free-lunch saloon in the slums of New York has 31.5 per cent alcohol, i. e., 26.7 below proof."

Regarding fusel oil, "traces were found in every one of the fifty-one specimens examined, but only traces. The New York five cent saloon is the first exception, as there was none there. I attach no importance to this difference, because I am convinced by these experiments that the fusel oil in whisky has been talked about and written about infinitely more than either its quantity or its quality deserves, and more particularly that age has practically little or nothing to do with it But if it proves anything it is that whisky commonly dismissed under the contemptuous appellation 'cheap,' is at least as good in this respect as any other.

"The same is true of sulphate, of which there is a trace in every specimen.

"The same is also true, I am persuaded, of the more active poisons, in general; there seemed no likelihood that these would be found because there appeared no plausible reason for putting them in. However, the long and elaborate test for arsenic was made in seventeen cases chosen for their representative character, and arsenic was found in three; two of these were choice varieties of whisky, while all six of the prisoners' specimens were found free, and out of five cheap purchased specimens, only one was in the arsenic list. The

New York slum sample, though subjected to two examinations, showed no trace of arsenic.

"Here again, the favorable showing of the 'cheap' varieties merely spoken of as an amusing curiosity of the situation, and as proving if it proves anything, that one kind is at least as good as another. My experiments show that noxious adulterants are not to be expected in even the lowest specimens, but as stated there are adulterants. They are as follows: Burnt sugar, an ounce will color a barrel; glycerine, or 'gum,' i. e., dissolved sugar, for sweetening, in plain English; also for communicating that oily look which *connoisseurs* gaze at with such rapture as they pour a little puddle of the fine old brand into the hollow of their hand, etc. These additions are harmless. Then there is water, the cheapest of all adulterants. But the dealers claim that 'water don't hurt nobody.'

"What is commonly called genuine whisky owes its color, taste and odor to oak. I have whisky bought by myself direct from the still, and kept in bottles for over two years. It remained as it was at the beginning in every respect, and is so different from the whisky of commerce in odor, taste and color, that three who sampled it, including one dealer, failed to recognize it as whisky. This fact is well known by the more thoughtful dealers, I have since ascertained. But I demonstrated it to myself by forty experiments

in which pieces of oak and other woods, charred and uncharred, were immersed in various kinds of spirits in corked and uncorked bottles, and the changes in color, odor and taste carefully noted. Charring hastens the coloring process and tends to communicate a reddish to the brown or yellow. And I find that chestnut gives the same color and taste as oak. A sample in which charred chestnut had been steeped for a few weeks passed with my most expert professional sampler as three-year-old whisky.

"I tried four dealers, not one who had been less than twenty years in the business, before I could find one who would venture to commit himself by tasting my samples. One of them accepted, but later the sample came back without a word. Another, a mixer of strange drinks in clubs for thirty-eight years, frankly declined, saying that he had fooled people hundreds of times himself and knew he could be fooled.

"*It is the alcohol that does the business,* not the fusel oil; not the sulphuric acid; not the arsenic; not the burnt sugar; not the glycerine; not the bead oil—certainly not the water.

Of course the author understands that many, perhaps the majority, will refuse to accept the statements of Professors McCook and Riggs. The public, including druggists and doctors have always been cautioned regarding the different grades of whisky, and so thoroughly has this

teaching been impressed upon their minds that many of them *know* they are true. Are they true? Is there a man, any one, who by taste, smell or color, can inform us regarding the quality of whisky? Years ago, while engaged in the drug business, the author, upon different occasions, gave to representative liquor men samples of different grades of whisky for the purpose of having them pass judgment upon the quality according to taste and odor, and in no instance did they give an intelligent answer. They were as likely to select one variety as another. Therefore, the author understands this part of Dr. McCook's experiments are true. If we cannot depend upon taste or smell, upon what can we base an opinion? If we refuse to accept the analytical tests of Dr. McCook how shall we deal intelligently with the different grades of whisky? Can any one solve the problem? Every one must understand that public opinion regarding the quality of whisky has emanated from:

Its color—which is artificial.
Its odor—which is artificial.
Its taste—which is artificial.
To the different styles of packages.
To the different colored labels.
And to the persuasive powers of the dealer.

TOBACCO.

Tobacco derives its botanical name nicotiana from Gene Nicot, who introduced tobacco into France. Nicotine is the name given to the poisonous principle of tobacco. Tobacco is said to be a native of America, and now cultivated in most parts of the world, and nowhere more abundantly than in the United States. Virginia is the most celebrated state in the Union for raising tobacco.

From its earliest history the use of tobacco has been bitterly opposed. As early as the fifteenth century tobacco was said to be loathsome to the eye and nose, harmful to the brain, dangerous to the lungs, and it was claimed that the fumes resembled the smoke from the bottomless pit.

The per cent of nicotine varies with different specimens, that grown in Havana, Cuba, contains the least, about two per cent. That is why Havana tobacco is more expensive. The tobacco raised in Virginia contains about six per cent. Some varieties contain eight per cent. Prussic acid is the most virulent or deadly poison known. With this single exception nicotine is the most rapidly fatal in its effects, one or two drops placed on the tongue of a dog or cat causing almost instant death. The faintest odor is all that is needed to

destroy small birds. From one to five drops will destroy human life. The oil of tobacco contains nicotine and is a virulent poison. Nicotine is a colorless oily liquid. Nicotianin is the name given to a solid volatile principle to which tobacco is said to owe most of its flavor.

The poison of tobacco affects the whole nervous system. The throat, stomach, brain and heart receive the first and most severe effects, hence nausea and palpitation of the heart are early symptoms. The tobacco-heart is well known to most people. Through its power to produce dyspepsia, tobacco may be the primary cause of nearly all diseases. With some the irritating effects of tobacco cause the heart to beat violently, and become more or less irregular in its action. This condition of excitement is very exhausting, especially to the young, or to those with a nervous temperament.

The increased heart-action may cause increase in the size of that organ, and there is often an increase in tissue, the heart enlarging in order to meet the increasing demands made upon it, the walls of the heart becoming thicker and stronger. This constitutes enlargement of the heart. The pulse becomes full, the arteries congested, there may be headache from increased blood-pressure, general restlessness, shooting pains in the chest, neuralgia, etc. These are Nature's language, telling us of the poison and irritation in the system, and demanding their remov-

al. There may be dry cough, caused by congested arteries in the lungs.

All these conditions are increased with the continued use of tobacco. In the young or physically weak, the nerves supplying the heart may become so exhausted that the organ may not be able to discharge its duty, and there results a constant strain which causes the heart to dilate; it becomes larger yet there is no increase in tissue, because the blood is unhealthy and irritating, the circulation is feeble, the heart is poorly nourished, and as it enlarges the walls become correspondingly thinner and weaker. This is called dilation of the heart. In this condition the heart is weak and the pulse feeble. There is a lack of blood in the distant arteries, hence the body is poorly nourished. There may be headache from lack of blood, there may be faintness from the same cause.

These heart-changes frequently follow Bright's disease, yet Bright's disease may be caused by tobacco through its interference with digestion. A weak heart means too little blood in the distant organs and the peripheral circulation, and too much in the central organs. The lungs become congested and this causes pressure on the air-cells and small bronchial tubes, producing irritation and cough, with more or less bronchitis, which may lead to consumption.

Glycosuria, or diabetes, is a disease in which there is too much glucose or grape-sugar circu-

lating in the blood. In health the liver controls this product of starch-digestion, hence glycosuria is thought by some to be a disease of the liver. By others it is charged to the kidneys, pancreas, brain, some undiscovered condition of the nervous system, etc. Primarily this disease is called glycosuria, later the kidneys are affected, causing Bright's disease. All investigators are agreed that in glycosuria there is some disordered state of the nervous system. What is better calculated to cause a disordered state of the nervous system than tobacco? Nothing, unless it is alcohol. Very few will pretend to deny that tobacco produces more or less exhaustion of the muscular powers; and it is only reasonable to believe that the same debilitating effects may be responsible for the loss of nerve-control over the internal organs.

Every one understands this to be true regarding the heart, and the same reasoning proves it true regarding the liver and kidneys, hence the failure of these organs to perform their duty, as in glycosuria. Tobacco interferes with digestion, and when food does not digest it ferments, and there result many poisons. The veins of the digestive tract unite to form the portal vein, and this enters the liver, hence many of the poisons resulting from indigestion are carried direct to this organ. The liver tries to reduce the poison but fails, becomes exhausted, the kidneys try to eliminate them and also fail. In both cases the poison produces inflammation, and disease fol-

lows. Undoubtedly the paralyzing effects of tobacco, its interference with digestion and consequent lack of nourishment, are sufficient to cause glycosuria. This disease is not common, yet is quite frequently met, and is here mentioned simply to show how tobacco may produce a disease, and then be overlooked in the list of causes. Glycosuria is nearly always fatal, and is often called Bright's disease.

As a primary cause of dyspepsia, tobacco may be directly responsible for chronic disease of the heart, brain or spinal cord; weak lungs, bronchitis, pneumonia, consumption, cancer, Bright's disease, rheumatism, neuralgia, epilepsy, insanity, paralysis, weak arteries, followed by softening of the brain, by hemorrhage in the brain, apoplexy and death.

More frequently the use of tobacco is followed by rheumatism, neuralgia, sciatica, headache, pain about the eyes, fixed pains about the stomach, chest, side, or around the heart, loss of appetite, nausea, bad taste in the mouth, catarrh of the stomach, throat and head. These conditions are explained more fully in other chapters. They may be produced by tobacco, alcohol, over-eating, or other forms of excess. No one cause is better suited to produce these diseases than tobacco, its lowering effects upon the vital forces, its paralyzing effects upon the nervous system, its interference with digestion, followed by the appearance of irritating substances in the blood, together

with the poison itself, are sufficient to produce any and all kinds of disease.

With many tobacco produces pallid face, relaxed muscles, yellow skin, languor, darting pains, and loss of appetite. These conditions increase until some malady steps in and hurries the victim to a premature grave.

When death occurs suddenly it is usually a man. Why not a woman? Because comparatively few women use tobacco.

Cancer of the lip usually occurs in men and in tobacco-users. Why not in women?

Experience proves that sudden deaths usually claim for their victims those who use tobacco. If tobacco is not the cause, what is? Sudden death is caused by paralysis of the heart. As stated elsewhere, there are estimated to be six hundred million air-cells in the lungs, and they are estimated to present a surface more than seven times greater than the whole outer surface of the body, hence the vast network of nerves which supply them, and which are exposed to the poisonous tobacco-smoke. The same nerve which supplies the lungs also supplies the heart. Is it any wonder that outraged nature refuses to submit longer, the central organ of the system ceases to act, and the man topples over dead?

True, it is claimed that very little of the products of tobacco reaches the system through the lungs, yet on account of the large amount of surface presented by the air-cells, if the air inhaled

by the smoker contains ever so little of the poison there will be enough absorbed to produce serious results. The effects of tobacco are received mostly by absorption through the mucous membrane of the mouth, throat and stomach, and when this subtle poison is thus absorbed it affects the blood, which is carried to all parts of the body, producing an exciting and fevered condition, the whole nervous system becoming weakened.

Tobacco increases the secretions of all mucous surfaces, and this is directly responsible for catarrh of the stomach, throat, nasal passages, and the various cavities or sinuses in the head, which are lined with mucous membrane. The tobacco-heart is better known, only because it is more dangerous than the tobacco-throat. As a rule, the throats of tobacco-users present a red, swollen, and inflamed condition. This causes more or less effort to dislodge the secretions, which are continually present in varying quantities.

The catarrhal conditions are more marked in the stomach and throat with those who chew, and in the bronchial tubes, throat and nasal passages with those who smoke. Chewing is more injurious than smoking because more of the poison is absorbed. Prize-fighters and athletes understand from practical experience the debilitating effects of tobacco, and never use it while in training.

Nausea, a feeble pulse and cold skin, are con-

ditions frequently met in those who use tobacco, and especially in the young.

But some one inquires: "How is it that some people live to be eighty or ninety years of age, and even older, and use tobacco all their lives? If this is true, such cases occur but seldom, while on the other hand each one can enumerate many, perhaps scores, whose health has been impaired by the use of tobacco. The author has cured (?) many cases of supposed heart-disease. With medicine? No, but simply by advising the patient to stop using tobacco.

The first experience of every user of tobacco proves it to be a poison of a dangerous kind. It acts as a powerful depressant, causing nausea, faintness, vomiting, dizziness and general relaxation. These facts can be proven by every one commencing the use of tobacco. Tobacco checks digestion, nutrition and growth, especially in the young. With the young the body must not only maintain its equilibrium—repair and waste—but it must grow and develop. Again, the cells and tissues of the young are not fully matured, they are not as strong and resistant as in the adult, hence it is at this time that the effects of tobacco are most disastrous.

Careful experiments prove that schoolboys who use tobacco are on an average ten per cent lower in their studies than boys who do not use it. The reason is that there is a gradual decline in the mental powers caused by lack of nutrition.

In either men or boys there is a decline of mental control, because the brain is weakened, irritated and poorly nourished. Degenerative changes sometimes follow which affect the nerve of sight.

The different tissues of the body contain phosphorus. The brain is estimated to contain one ounce of this element. If phosphorus is exposed to air, it immediately unites with the oxygen and spontaneous combustion is the result, producing intense heat. One-fifth of all the blood in the body is required to nourish the brain; hence one-fifth of all the oxygen absorbed from the air we breathe is carried by the circulation to the brain, and unites with the phosphorus contained there, in order that our thoughts may breathe and our words may burn. Phosphorus is absorbed from the soil by the plants which are used as food.

The presence in the brain of so large an amount of phosphorus, and the readiness with which it unites with oxygen, are sufficient evidence that nature has designed that we should exercise freely in the open air, and also that our lungs should be strong and capable of full expansion, that we may inhale an abundance of oxygen. This keeps the fire burning, sends a glow to the cheek, a fire to the eye, and lights up the whole countenance with an expression that many tobacco-users do not possess. Milk, eggs, fish, whole wheat, peas, beans, etc., are mentioned as containing a large percentage of phosphorus. Pork, fine flour, pastry, bologna, red pepper, old cheese,

strong tea and coffee, beer, whisky, cigarettes, cigars and old pipes are not mentioned as articles containing phosphorus. Some one has said that a hog stuffed with tobacco would make a fit offering for the devil.

Convulsions may result from the use of tobacco, and are caused by the irritating effects of the nicotine, and also by the irritating substances resulting from indigestion caused by tobacco. The brain and spinal cord are known as the central nervous system. The voluntary muscles, or those under the control of the will, are supplied by nerves having their origin in the spinal cord. In health the spinal cord with its system of nerves is subordinate to the brain; but, through constant irritation produced by tobacco, septic blood and lack of nourishment, the brain loses control and the spinal nerves, irritated, excited and freed from the restraining influence of the brain, set up a spasmodic action, in accordance with their nature. The spasms may be in the form of light, twitching and jerking movements, as in the beginning of some forms of paralysis; later, degenerative changes in the cord produce paralysis more or less complete.

It is admitted that tobacco is not always the cause of paralysis, yet paralysis is caused by a lack of nourishment and the degenerative changes which follow, and what is better calculated to interfere with digestion and nutrition than tobacco?

Apoplexy is a form of paralysis caused by the rupture of a vessel in the brain, and the conditions leading up to the diseased and ruptured vessel may be the same as just given, i. e., the result of tobacco.

There are eight hundred millions of people using tobacco. Is that any evidence that tobacco is not harmful? No, for there are many more who use beer, whisky, morphine, or cocaine, and no one pretends that these are not injurious. Every one understands that they cripple the consumer physically, mentally and morally, that they deprave, degrade and enslave, and in time reduce the user to the brute level.

Henry Ward Beecher once said, "A man is a being who stands with one hand upon Heaven and the other upon Hell." The user of tobacco and whisky is not such a being, cannot be. We are told that the highest type of manhood is man. "A man is one whose body is a willing servant to the mind, and whose mind is a clear, cold logic-engine, with all parts of equal strength, whose passions are trained to come to a halt by a vigorous will. A man loves all beauty, whether of nature or of art, and hates all vileness, including whisky and tobacco."

QUACKS AND PATENT MEDICINES.

Some of the following is taken from *"Secret Nostrums and Systems,"* a book published by Dr. Oleson of Chicago.

Prominent among the quacks are those who, disguised as physicians, abuse the confidence of the young. This is made possible by the failure on the part of the parents to properly instruct their children. Great pains may be taken with their education, and the teaching of trades and professions, and how to accumulate wealth. But almost without exception they are left in ignorance regarding those equally important subjects, sexual hygiene, marriage and divorce. The neglect to instruct upon this subject contributes to the success of the so-called specialist-quacks, who grow rich on the savings, ignorance and fears of their patients.

The only way to save young people and prevent their falling into the hands of these sharks is to educate them. Give them the knowledge which has the power of protection. I know there are many who think children and young people should be left in ignorance regarding these questions. Many say they will find out these things fast enough. Others say Nature will give them the knowledge as fast as they are able to under-

stand. Strange, Nature does not give them the knowledge of mathematics, anatomy, etc. Strange the public does not know that the quack is not professional but mercantile in the lowest and most degraded sense. "He has goods to sell and his business is to sell them. The higher the price, the better the bargain. It is immaterial to him whether the patient needs the goods or not. Quacks soon reap a harvest, and the world turns willingly and with equal gullibility to their successors. The quack is multitudinous. Every season sees new forms of quackery exploited and all succeed. The number of quacks and quack agencies is on the increase. The boldness and offensiveness of their advertising methods are working an injury which demands more than ordinary notice.

"Many quacks now work under the guise of agencies or companies. They have laboratories (?), consulting rooms and elaborate methods of advertising by circulars, hand-bills, and newspapers," all correspondence being "strictly private." "So complete is the system that there are few young men and growing youths who do not get hold of some disgusting, or to them terrifying, notice picturing the horrible results of some conditions in life, that may be absolutely free from danger. Thousands are thus frightened into a seeming necessity of placing themselves under the treatment of those scoundrels, these abortions who call themselves doctors, and

who wring from their subjects their last dollar. In the first place the case needed no treatment, but the fakes, in order to keep the money rolling in, have so harassed and frightened their victims that mental strain follows, and a victim once in the toils of these unholy agencies is subject to influences tending to keep him there. It is the aim of the quack to produce as much morbidness, despair and distress as possible, for while in this condition the victim is more easily "bled," thus making the practice a foul prostitution of medicine."

"These quacks without character or conscience are allowed to plaster telegraph poles and other public places with announcements of wonderful cures." This is a nuisance to intelligent people and a serious harm to those unable to judge of their honesty. The mails are used freely to carry on this low-grade practice. This should not be allowed, yet advertising sheets are so worded that it is difficult to legislate against them.

A circular reads: "A physician of thirty years' experience is at the head of this Clinic. All manner of diseases are treated and medicines furnished. Free consultation. All who are afflicted with any chronic disease, of whatsoever nature, should avail themselves of this opportunity," etc. "Many diseases heretofore incurable, all affections of the blood, liver, lungs, heart, kidneys, etc., etc., etc., are perfectly amenable to the new

and advanced method." Then follow careful directions about correspondence, etc.

All such quacks and rascals, regardless of color, age or sex, should be sent to prison for one hundred years and without the cost of a trial, as they have already furnished sufficient proof of their guilt.

Another class, the cancer quacks, whose stock in trade consists of corns, warts, moles, birthmarks, etc. If they should find a genuine cancerous growth could they remove it? Possibly they could, if it was located on the surface. For it is claimed they remove all growths by local applications. A good strong arsenic paste, chloride of zinc paste, chromic acid paste and many others, will remove any kind of tissue or growth, cancerous or otherwise. Most of the cancer quacks are obliged to use only local applications, as it is said they are so ignorant regarding the human anatomy that they dare not use the knife.

Another class are known as the tape-worm doctors. They call themselves specialists. It is needless to say that all of their patients have tape-worm. It is said the tape-worm was known to Hippocrates, Aristotle and Pliny, but the modern tape-worm doctor probably claims to be greater than all these. At what length the tape-worm can exist in the digestive tract is not known. Twenty feet may be regarded as the extreme length, but the tape-worm doctor, with an eye to business, claims to have discovered them over

three hundred feet in length. The tape-worm doctors have no qualms, moral scruples or other twinges of conscience. All are fish who come to their net. He places in his window a placard announcing that no charge is made for consultation. Mr. Man sees it, and concludes he will have a free consultation; walks in, relates his "symptoms," and is assured he has a tape-worm, snake, lizard, scorpion or centipede inhabiting his "innards." He demurs. The specialist offers to guarantee to produce the animal within two hours; fee $100 if successful, no charge unless the parasite is produced. That seems fair, so the victim takes the dose (croton oil), sits down till the oil begins to work, and is then taken hastily to an earth closet in a dark room, his bowels move and in the vessel is found the promised parasite. He pays his money and goes off thinking he must have been almighty sick with that thing in him. Of course the worm had been placed in the vessel by the specialists and had probably been used dozens of times before.

There is another class of quacks, the professional abortionist. No pestilential vapor can compare with these monsters in human form—this leprosy—which drags its slimy length through the land, winding its python coils about its victim and poisoning the hearts of virtue and motherhood. No wonder the old Bible writers said: "Whoever toucheth them should be armed with iron, and the staff of a spear, that they should be

cast forth a withered branch, and that fire and burning winds should be their lot."

PATENT MEDICINES.

First, patent medicines are prepared under the cover of secrecy. Second, they promise impossibilities, therefore they are unreliable. According to the formulas published by some of the leading chemists in different parts of the United States, some patent medicines are worthless while others are dangerous. Opium, chloroform, alcohol, sugar of lead, croton oil, tobacco, corrosive sublimate, carbolic acid, tartar emetic, morphine, etc., are all used more or less freely.

As a rule physicians furnish medicines below the cost of patents. Manufacturers of patents are experts in making their packages look large and hold little, and those who practise this fraud wear fine clothes, ride in fine carriages and live in fine houses.

Patent medicine manufacturers adopt a plan of advertising somewhat different from those quacks mentioned above. They publish letters from those who use their remedies. A letter may be in the form of a pathetic appeal from one friend to another to try a certain patent medicine. Another letter may read: "I thank God I was induced to try your remedy," etc., or the manufacturers themselves may state: "This remedy is recommended by all first-class physicians everywhere." All this is absolutely false. The letters

recommending a remedy may be genuine, but they have been obtained from some poor innocent, who is innocent of her true physical condition. Patent medicine manufacturers love to publish letters of recommendation from lawyers, governors, leading society ladies, etc. These people may be able to make speeches, sign pardons, lead society and show the common people how to dress, yet they may be wholly ignorant regarding human anatomy and disease. Hence it is easy to get their signatures. Some may sign these letters under a promise that their name and photograph will appear before the public.

It should be remembered that some of the shrewdest men in the country are employed to furnish these write-ups for patent medicines. They have studied the question so closely that they know just the words to use to claim the attention and gain the confidence of the largest number of readers.

A few years ago it was customary to advertise these cure-alls as the result of some accidental discovery of some traveler in Central Africa or South America, and even now some teas are discovered in the Rocky Mountains. A few years ago people went wild over the new remedy Moxie Nerve-Food. "The remedy was said to be prepared from a plant discovered by Lieut. Moxie and, being entirely unknown by botanists, was named in his honor. A large reward was offered for any chemist who could analyze the new rem-

edy, or produce anything like it. And people swallowed both the story and the Moxie, and for a time the questions of the hour were dropped and everybody drank Moxie. Later this remedy was analyzed by the chemists, who stated it contained a decoction of common every-day oats, made into a syrup and flavored with sassafras and wintergreen." Another remedy, "Unequalled and unrivalled in the world of science, and the only medicine that can destroy germs that cause each particular disease, and restore perfect health," proved by chemical analysis to contain only fine granular sugar with not a trace of medicine." Others contain opium and alcohol.

There are some people who take medicine with greater regularity than they do their meals. These people are usually ill. People who enjoy the best health take the least medicine. Some poor mortals whose digestive organs are overtaxed, who are troubled with habitual constipation, who drink too much coffee or strong tea, who use tobacco or alcohol, who work too hard or not enough, are troubled with "nervousness" or dyspepsia, and partly through the sympathetic system and partly because the same nerves supply both stomach and heart, the latter becomes troubled with pain, fluttering and palpitation. The brain becomes clouded and the senses dulled. Perhaps "that tired feeling" so dear to the patent medicine shark, has a firm grip on the poor victim, whose imagination adds one horror after an-

other until the preponderance of emotion over the intellect, and especially over the will power, produces the condition variously known as biliousness, hysteria, melancholy, nervousness, nervous prostration, etc.

The patent medicine shark asks for no easier mark than this. He soon gets a letter such as has already been referred to, when the patient (?) "Thanks you from the bottom of her heart, for your wonderful medicine."

No wonder the fake Cancer-doctor gets $100 for removing moles and warts. Some people were not born right, and others cannot be, with their mothers wearing tight corsets and padded with false show, and the father with his tobacco-heart and rum-polished nerves.

The enormous sale of patents is maintained by the tons of advertising matter that is constantly being poured into the laps of the people, and also by the fact that in the great majority of cases the consumer does not need any medicine. The purchaser may be a little "under the weather" but nature soon asserts her rights with or without medicine.

There is still another class, those kind-hearted people who tell us:

That our profession is such a sacred thing
That our duty is to cure the sick, not to ask them
for the tin.

They say there's lots of good we can do
When the children have the rash,
And they'll always keep us busy
If we never mention cash.

They say we should not be avaricious
And want everything in sight,
But sleep with one eye open
And get there day or night.

But, I ask, when the last great conflagration
Is melting earth and rock,
How many'll there be in the multitude
That'll sigh for the good old "Doc."

None; it will be then as now, every one for himself and the devil take the hindmost. But what a lesson in hygiene! The three original elements, earth, air and water, all purified. Then will come the principles of Eternal Right, from beyond the horizon of twilight's purple hills, from that vast realm of silence or joy, where the innumerable dwell.

PURE FOOD COMMISSIONS.

The author understands that the brief thought here expressed may have no particular effect on the Pure-Food Commissions, yet the following statements are true, and will serve to some extent to show the "inner workings" of the pure-food inspections.

It is not difficult to establish in the public mind a belief that there is danger of being poisoned, and the arrest now and then of some respectable business man or firm only strengthens this belief. The customers of this particular man or firm are quite apt to think that they have had a narrow escape.

The Pure-Food Commission is giving us many fine points and much subtle speculation concerning what we shall and what we shall not eat. This is about as useful or valuable as music would be to a man laying brick. Regarding the food question we will continue to make mistakes as long as we depend on the chemist and the superficial work carried on by the food-inspectors. It is claimed that the trusts are back of the Pure-Food Commissions. If this is true it explains it all. It is easy to create prejudice. The very thought of adulteration causes a stampede, and the climax is reached when the food-inspectors

come along and arrest, perhaps, the most respectable business man in town. The manufacturer is prosecuted and persecuted, and comes back to find his business ruined, while he is left desolate.

Yet it is believed by many that pure-food laws aid in checking disease and in prolonging human life. This is a mere supposition, however, and is not supported by the facts. There may be instances where the pure-food laws are of benefit, yet the plan will never prove a success.

Pure-food laws will never give us pure food. We will get pure food when we know what it is, are willing to pay for it and insist upon having it, and not before.

Political food-inspectors must do something to show the importance of the pure-food commission, yet food-inspectors, supported by all the chemists in the world, cannot tell whether a certain food is going to prove healthful or not. The chemists decide according to certain changes which take place in the test tube and under the microscope, this part of the work being carried on between the cold, bare walls of a laboratory. This is vastly different from the warm, life-giving fluids of the human body, and does not prove that the same changes take place in the digestive tract.

Long before the chemistry of food was known, the instinct of man, even in the savage state, led him to select as the basis of common beverages, the six plants which, out of many thousands, are

the only ones known to this day to contain theine or caffeine, a stimulant and tonic. These are tea, coffee, chocolate, guarana, mate and kola nut; and the same instinct and experience must teach us regarding other foods.

Digestion is but imperfectly understood, the knowledge we have of it being very superficial. Again, food that does not agree with one may be the salvation of another.

The value of food must be left to common-sense, observation and experience, to the evolution of natural progress and will be so left regardless of Food-Commissions, because it cannot be demonstrated in any other way. Never before were we so well supplied with pure-food laws, and pure-food inspectors, and never before was there so much dyspepsia. This is proved by the enormous amount of artificial digestives now on the market. Every particle of food taken into the system is changed chemically, converted into other and different substances; digestion is carried on in the circulation, and is influenced by all the fluids of the body. The chemist has but a limited knowledge of these changes. He tells us that albumen, as found in the white of an egg and the venom of the rattlesnake, are the same; yet one means life and the other death. The chemist tells us that albumen, casein and fibrin are the same, yet the farmer makes cheese from casein while lean meat and muscle are composed of fibrin. Albumin is also the chief constituent

of the human body. The chemist tells us cellulose and starch are the same, yet cellulose is the basis of vegetable fibrin, while starch is our principal food-product.

These secrets have never been revealed by the Great Architect of Nature. The curtain has never been lifted, and human eyes have never looked behind the veil. Theoretically the chemist knows a great deal that is going on within the human body; practically he knows but little. Feed a sheep corn, and its body is covered with wool, feed a goose corn, and its body is covered with feathers; feed a horse corn, and its body is covered with hair. There are other animals which, if fed corn, will be covered with fur. The coon is an example. Feed a man on corn (bread), and his body presents only a delicate texture or covering, called skin. Can the pure-food commission tell us why? Do they understand the changes that take place in the living body?

Chemically and physically the composition of animal and plant cells appears the same. The animal cells separate certain materials from the blood-stream and elaborate new substances. The plant cells separate certain materials from the sap and elaborate new substances, yet the process differs greatly as shown by the results. Can the pure-food inspectors tell us why? One kind of plant cells will decompose carbonic acid, reject the oxygen and store up or preserve the carbon within their walls or tissues. Another kind of

plant cells will produce, out of the inorganic constituents of the air, the perfume of the rose.

In the animal kingdom, some cells convert some constituents of the blood into the digestive fluids, other cells convert other elements of the blood into milk, etc. Can the chemist tell us why? The question of food belongs to organic chemistry, and of this absolutely nothing is known during life. The chemist can trace the elements of matter into the structure of the living animal or plant, and out of it, but not *in it*. Whatever may be their mode of arrangement, or their possible ingredients in the living body of plant or animal, investigation will forever fail to reveal. Here the chemist can only take off his hat and confess his ignorance. Theoretically it requires a certain amount of bread, meat and vegetables to maintain life and health, yet a man may live upon bread alone, or upon meat alone, while it is claimed that the vegetarian enjoys as good health as anyone, and is quite as capable physically and mentally.

Food-inspectors are given arbitrary power; they are supported by the laws, personally they are irresponsible. They have the legal right to make a ruinous attack on a respectable business firm, and when the firm proves that they have a right to conduct their own business, the inspectors are allowed to go free. The absolute authority given to these inspectors is demoralizing to human nature. It cannot be otherwise. They are

liable to use such authority to advance their own personal interests.

It is only reasonable to believe that many, perhaps the majority of these food-inspectors, are office-seekers who have no particular interest for the health or welfare of the general public.

Sometimes we hear young society people say that so and so "was just too awfully funny for anything," but here is something that is still funnier. In order to have the people distinguish between creamery and renovated butter, the pure-food officials, according to their printed bulletin for May, 1899, Bulletin No. 45, advise the following tests so that the consumer may be able to detect fraud:

"1. Microscopic examination of the sample by means of polarized light, both with and without the selenite plate.

"2. Valenta's test.

"3. The Jene modification of Valenta's test.

"4. Determination of free fatty acids.

"5. Reichert, Number."

Shades of the immortal Cæsar! What do the public know or care about polarized light or Jene's modification?

With all their microscopes and test tubes, the officials themselves cannot tell whether they are being imposed upon or not. In one of their recently published proceedings, one of these expert examiners says: "It is my opinion that butter does not very readily, under ordinary methods of

treatment, assume a crystalline condition like that shown in the renovated butter; and I am, therefore, inclined to attach considerable importance to the evidence obtained by microscopic examination."

Again, after giving the analysis of five specimens of butter, the inspector says: "Sample four was known to be renovated butter, the other samples, judging from analysis, I regard also as renovated butter."

Did not know whether it was or not! If the putrefaction of the race is to be prevented by these pure-food inspectors, they have no time for such vague talk. Give the old microscope another turn. Shake up the little test tube again. If you have no confidence in yourselves place it in somebody else. Keep the wheels turning. Tell the people to drop the nickels in the slot, and go ahead, as everything is bound to come out all right in the end. Just think of a hungry man not being allowed to eat his supper until the pure-food inspector had examined the butter, and by and by the inspector should come back and say to the hungry man: "It is my opinion that butter does not, under ordinary methods of treatment, assume a crystalline condition like that shown in renovated butter, and I am, therefore, inclined to attach considerable importance to the evidence obtained by microscopic examination."

Question: What kind of butter did the hungry man have for supper?

The Polack farmer can stain his dirty off-colored butter to resemble a rich, properly made, natural, golden, cow-product. Is it any more wrong to color steers' fat yellow, than to perform the same operation with lardy cow-grease?

The *Detroit Journal* of March 13, 1900, in reporting a suit over a case of process butter, says: "The prosecution in this process butter case now in progress in Jackson, Mich., rested this morning. The defense placed Prof. Delafontaine of Chicago on the stand, where he remained all day.

"The Professor has an experience of forty years as a chemist, and the tendency of his testimony was to show that no method of analysis has been discovered which would be accepted by scientists, whereby the difference between dairy, creamery, and process butter can be distinguished." This means that process butter is so perfect that the chemist is unable to detect it.

Progress along the lines of natural development can manufacture an article equal to the finest creamery butter, yet the pure-food commission would place the sale of such butter under certain restrictions, and at the same time allow the free marketing of thousands of tons of dairy butter which is unfit to eat.

During digestion the fluid of the human stomach contains about 0.2 per cent of muriatic acid, and a ferment called pepsin. These digest or dissolve the albumen which is found in the various food products.

In the American Druggist for October, 1900, page 219, reference is made to Joseph R. Perry, Ph.D., M.D., and what he has to say concerning the value of pepsin, as follows:

"Numerous experiments with pepsin and acid, and acid without pepsin are described with the observation and conclusion that pepsin and acid in three to seven hours digested and dissolved egg-albumen, beef and various other foods; leaving out the pepsin did not affect the result." Dr. Perry also states that he "proved most conclusively that muriatic acid is a digestor of all these foods and that pepsin by itself has no digestive power at all." Again Dr. Perry states that "pepsin is one of the greatest humbugs in the whole list of the armamentarium of the physician."

This is another evidence that experiments on digestion which are carried on in a test tube by a chemist may posses little or no value. This one possesses none. Undoubtedly Dr. Perry made a careful test before he declared pepsin a "humbug," and the fact that he did so proves that reliance cannot be placed in any form of artificial digestion. Pepsin is not a humbug but artificial digestion is. Nature does not manufacture pepsin without a purpose, and the fact that it is only present when there is food in the stomach is sufficient evidence that it aids digestion.

Take milk, another example. Many fine articles have been written on this subject, but up to the present time the best thing on milk is

cream. The perishable nature of milk has led to numerous attempts to conceal its age, but the many chemicals used in the past have probably all been discarded for the newer remedy formaldehyde. According to the report of the "Dairy and Food Commission," food inspectors are ever watchful and prepared at all times to cause the arrest of anyone using formaldehyde as a preservative. Callerine, Freezine, Preservaline and other preparations used for preserving milk are probably nothing more or less than formaldehyde. Regarding the manufacture of Preservaline, the Dairy and Food Commission of Michigan say, in a printed bulletin for April, 1899, page 4: "This (Preservaline) Company seeks to promote the sale of its products in the very channels where it will most imperil the health of the children of our state. The use of acid preservatives in milk is dangerous, and we doubt if there is a chemist of repute to be found in the United States, who would countenance its use in milk for the feeding of infants," etc. The Bulletin says further: "The Department" (Health Department) "through its dairy inspectors, will make a special effort to detect the use of preservatives in milk sold for consumption, and we are determined that an arrest and prosecution will be made in each and every case."

And yet, the food-commission of Michigan or any other state, supported by all the chemists in the land, cannot produce evidence that formalde-

hyde is injurious to the human system. The probabilities are it is not. The small amount required and its purifying effects, probably render milk much more wholesome than when it is not used. Especially is this true during the summer months.

It is said that one-half ounce of formaldehyde will preserve forty quarts of milk for about 36 hours in the hottest weather. This is only six drops to the quart. It should also be remembered that the formaldehyde evaporates, leaving the milk in its natural state. Food-commissions do not object to boiling milk; in fact they recommend it, yet boiling may interfere with digestion, absorption and assimilation, because nature designed milk to be drank in its natural state, and no amount of boiling can improve on nature. The fact that most people dislike boiled milk is strong evidence that boiling is a detriment and not a benefit. Formaldehyde produces no change in milk, boiling does.

"Dr. W. S. Alexander, of Oxford, Ohio, in a paper read before the Union District Medical Association and published in the *Cincinnati Lancet-Clinic,* expresses his enthusiastic approval of formaldehyde as a remedy for hay fever. He employs a one-half per cent solution (about two drops to the ounce), allowing the patient to inhale the fumes from a drachm vial. He claims that in this way he comes as near curing the most

obstinate forms of catarrhal troubles as by all other means known."

Merck and Co., of New York City, are manufacturing chemists, and probably every member of the medical profession recognize them as authority. Merck and Co. say in a printed pamphlet: "Formaldehyde is generally conceded to be perfectly devoid of toxicity or corrosive properties to higher forms of life. No record of exact experiments relating to its physiological" (or natural) "action on the human body appears to exist; but in a paper read before the Society of Public Analysts at London, Dr. Rideal stated that he had frequently drank considerable quantities of a one per cent solution without experiencing any ill effects; and it is known that formaldehyde has been used quite largely during the last few years as an antizymotic" (to check fermentation) "in articles of food, but we have yet to hear of any unpleasant effects following the ingestion of the products thus preserved."

Again, the circular states, "Meat, fish, etc., may be kept for a number of days during the hottest weather, by placing them in well-covered dishes with a tuft of cotton moistened with from four to eight drops of formaldehyde solution. The antiseptic vapor does not communicate the slightest odor or taste to the meat, etc., the articles being perfectly preserved, even under the severest conditions of temperature."

Again: "Formaldehyde has been successfully

used for preserving catsup, vinegar, pickles, milk, fruit, vegetables, mincemeat, fruit juices, syrups, cream, broths, fruit jellies, etc., the proportion usually required being one or two to eight thousand; but from the innocuousness" (harmlessness) "of formaldehyde, it may be inferred that the proportions can be safely exceeded if necessary."

A pamphlet published by the well-known firm of Parke, Davis & Co., of Detroit, contains the following:

"Formaldehyde solutions have the advantage of not being retarded in their action by albuminous matters and of not injuring the articles to which they are applied." The pamphlet also states: "1 :32000 preserves milk for several days; 1 :4000 is recommended for moistening paper used to cover jam, etc.; 1 :3200 for rinsing dairy vessels; 1 :500 as a mouth-wash."

Again: "A spray of one-half per cent is valuable in hay fever, and a spray of one per cent in whooping-cough." One per cent is four and one-half drops to the ounce.

The same circular states: "Formaldehyde solutions have been employed quite extensively in the treatment of throat affections. In sixteen cases of acute laryngitis, inhalations of a two per cent solution of formaldehyde" rendered "a complete cure in from seven to twenty-four hours," etc. A two per cent solution is nine drops to the ounce.

The foregoing authorities recommend four and one-half drops to the ounce in whooping-cough, and nine drops to the ounce in throat troubles, while it is claimed that it only requires six drops to the quart to preserve milk; and this soon evaporates.

But seemingly the Pure-Food Commission proposes to disregard all facts and cause the arrest and prosecution" of every one who tries to check decomposition and preserve food in a healthy state.

The *Detroit Journal* for January 19th, 1901, reports a suit brought by the Pure-Food Commission, who claim to have discovered formaldehyde in milk. During the course of the trial the Journal reports Dr. Hurdy as saying in a printed article: "I have for the past five months eaten daily for my lunch a bowl of bread and milk in which I put ten drops of formaldehyde, and so far I have been unable to observe that it has left any ill effects—rather I would say, that I am better for the use of the chemical." Dr. Hurdy also says: "That five to ten drops of formaldehyde to the gallon of milk would keep it sweet and would not detract from its nutritious property."

Other evidence given in the case as reported in the *Detroit Free Press* of January 26th, is as follows:

"Dr. Edward K. Bacon, a teacher of surgery and anatomy in the Michigan College of Medi-

cine and Surgery, and a practising physician, stated that he has had six years of actual practice in medicine, and made a special study of formaldehyde and used it in his practice to a large extent, particularly in diseases of babies.

Dr. Bacon said he had used it in doses of from one-fiftieth to ten drops in the regular solution. It proved a cure, in cases of infants, for stomach, lung, bronchial and other complaints. He believed that sterilization and boiling milk had a bad effect from a physiological standpoint. By the use of formaldehyde, however, it was possible to ward off disease in children. The doctor said between one drop to 25,000 and one drop to 50,000 will keep milk sweet from twenty-four to thirty-six hours, prevent the growth of organisms, etc. Plant life contains formaldehyde."

Similar cases of prosecution by Health Boards could be added to great length.

It is estimated that about fifty per cent or one-half of all deaths in cities are of young children, and about two-thirds of this number are infants under one year of age. In nearly every case the primary cause of disease may be found in the digestive tract. Over one-third of the children and infants die during the months of July and August. Hot weather kills babies by spoiling their milk and other foods. During the hot months feeding bottles and other containers are often in an unhealthy condition, and the poisonous prod-

ucts of putrefaction are conveyed to the child's stomach, hence disease and death.

The foregoing death-rate is based on estimates made by careful observers, and if true, the Pure-Food Commissions are doing very little for the preservation of human life. Perhaps a trace of formaldehyde, just enough to check decomposition during the summer months, would prove a powerful aid in checking disease and death; but food-inspectors have never been trained in the handling of children, and do not care much about it anyway. Again, they have no time for these minor duties. They are too busy making out bills of fare for hotels, boarding-houses, and other institutions, and thus teaching the people what they can and cannot eat; too busy formulating recipes for the manufacture of flavoring extracts, giving directions for canning fruit, and watching some enterprising American who takes dirty dairy butter and purifies it, butter which was unfit to eat, but which the food-inspectors allowed to be sold anywhere. But after modern methods and skill have purified it the Pure-Food Commission places its sale under certain restrictions. Every one understands that both city and country is flooded with a worthless product called dairy butter, and the food inspectors allow the free marketing of this product? Yes, but when it is rendered clean and wholesome,—equal to the finest creamery, it must bear some special mark which naturally reflects upon its purity, and casts suspicion upon it.

Again, when the food-inspectors find a man selling a can of corn beef labeled with red letters instead of blue or black, and containing or not containing, it makes little difference which, some particular mark, that originated with the Pure-Food Commission, and which no one else cares anything about, then they cause an arrest. This keeps the Pure-Food Commission prominently before the public mind.

How strange that our grandfathers and grandmothers lived to such a hearty old age, when they never heard of a food-inspector.

Are the Pure-Food inspectors really interested in the public health?

Are they working for notoriety?

In order to gain public confidence, do they make false charges against respectable business men?

The Grand Ledge, Michigan, *Independent*, of December 21st, 1900, contains the following: "The Pure-Food Inspectors are after parties who are in the habit of embalming oysters. Three wholesale dealers in Detroit have been arrested charged with adding boric acid to their bivalves. It is claimed that one-hundredth of one per cent of the preservative is dangerous to health."

Yet some of our leading manufacturers of physicians' supplies recommend this same boric acid as an aid to digestion. They say: "If decomposition follows the ingestion of food, and there are eructations of gas and flatulence, a

drachm or two of boric acid may be added to a four ounce solution of pepsin. This drug, curiously enough, increases the power of pepsin to dissolve albuminous foods so as to almost double it, and also arrests decomposition."

The four-ounce prescription just mentioned contains twenty-four doses (six ordinary teaspoonfuls are equal to one ounce.) The two drachms of boric acid recommended contain one hundred and twenty grains. One hundred and twenty grains divided in twenty-four doses, the amount of the prescription, gives five grains for each dose. The Pure-Food Commission says one hundredth of one per cent is dangerous to health. One-hundredth of one per cent is about one one-hundred and thirtieth of a grain to one teaspoonful—the usual dose.

As stated, some authorities recommend five grains to a dose; this is over six hundred times the amount. Other authorities recommend ten grains for a dose; this is over thirteen hundred times the amount.

On December 22nd, 1900, the author weighed out one hundred and fifty grains of boric acid, and divided this amount into fifteen doses, making ten grains to each dose. He took one dose three times a day for five days, or until the one hundred and fifty grains were taken. This was over thirteen hundred times the amount which the author understands the Pure-Food Commission claimed to be dangerous, yet the result was a

complete success,—no effect on the appetite except to improve it. There was no inconvenience or ill effect, health perfect.

The author has seen a whole handful of boric acid thrown into the wound after an amputation at the knee; the flaps were stitched together, the acid was absorbed, and the patient proceeded to get well promptly.

And lastly, some of the best authorities state: "Several observers have reported cases in which thirty and even sixty grains of boric acid were taken several times a day without any untoward effects." This is several thousand times the amount which the author understands the Pure-Food Commission claimed to be dangerous.

Boric acid is a very weak acid, so mild in its effects that dissolved in water it is frequently used as an eye-wash. Borax is formed of boric acid and soda, hence boric acid may be made by decomposing borax.

The trouble with the Food Inspectors seems to be their failure to differentiate between an adulterant and a preservative. The author is heartily in sympathy with every law and every effort to prevent food adulteration in any form, yet food may be preserved without adulteration.

To adulterate is to add that which is impure or less valuable, to mix other and baser ingredients for the purpose of gain.

To preserve is to protect unimpaired, to keep in the same condition, to prevent fermentation,

decomposition and decay. The two conditions are exactly opposite. To preserve food is to maintain the original condition unchanged, hence preservatives are of great importance. Formaldehyde is a preservative; so is boric acid. Heat and sugar used in canning fruit are preservatives. The articles and processes used in rendering filthy dairy butter clean and wholesome are preservatives and all should receive the highest commendation. Yet the Pure Food Commission attack these preservatives and these methods, which are designed to maintain a high grade standard, and seek to place them on the same low level with adulterants. They go further, they prosecute those engaged in the creditable work of improvement the same as they prosecute the base, corrupt, and fraudulent adulterator.

Unless Food Inspectors can realize the difference between an adulterant and a preservative, they had better resign their positions and saw wood.

Undoubtedly the food-inspectors could, if they felt called upon, write breezy articles proving their devoted service, and the great benefit they are rendering the people.

Were the Pure-Food laws made for the people? The inspectors say yes.

Did the people know anything about the framing of those laws? Probably not.

Did the people ask for Pure-Food inspectors?

No, it is said the inspectors were thrust upon them.

Were the Pure-Food laws created by the trust? May be. If not by the people, or by the trusts, then are they supported by office-seeking politicians? It may be true that the Food Commission was originally designed as a benefit, and that the promoters were conscientious in the discharge of what they believed to be their duty, but it is said the Food-Commission has been turned into a political ring.

Are food commissions controlled by the trusts?

A recent issue of a leading medical journal says editorially: "When we come to baking-powders, we begin to smell wool. The trust controls patents on processes employed in the manufacture of tartaric acid that render it impossible for independent houses to compete with it unless alum is employed. Hence the endeavor to create popular sentiment against alum. It may be injurious, possibly in the small amounts found in the powders made outside of the trust; but the people do not care to be 'worked' by a monopoly and stampeded into their corral like a lot of Texas steers. There is no overweening solicitude for the public health back of this pure-food agitation, but the selfish desire to promote the profits of monopoly, pure and simple."

When will we learn that all substantial gains of the human race, from primitive savagery to the present day, have come to us by the natural laws

of universal progress, and not through a few political humbugs and office-seekers?

Upon natural law rests the constitution of nature, which ever bears all things to higher heights and nobler forms. Through all the ages of the world, the greatest enemy of man has been the arrogant few. This has been possible through a wrong impression, and one of the deadliest forms of such impression has been the almost universal belief that parliaments, congresses and legalized bodies are wiser than the rest of the people, wiser than nature and her laws, and that these political bodies can destroy social evils and fraud.

DO GERMS CAUSE DISEASE?

While this volume is not intended to deal with bacteriology, the author wishes to add a few thoughts upon that subject. Yet the question is one of such importance and magnitude, that no doubt the reader will conclude at once, that it cannot be answered or even intelligently alluded to in one short chapter.

Of course the writer understands that many will laugh at any teachings opposed to the present day, popular germ theories. Yet in another article by the author, entitled "MICROBES AND HEALTH" there is given a clear solution of the germ problem, a clear explanation of how contagious diseases are conveyed from one to another, and abundant evidence that such conveyance is entirely independent of all germs and germ theories.

In the following pages the author has merely called attention to some of the absurdities of modern bacteriology. The writer is a believer

"In that shrewd suspicion,
That the whole microbe train,
Had its first conception
In some doctor's empty brain."

During the past few years it is claimed many new discoveries have been made in the bacteriological field. But the medical profession has so

often had its expectations aroused only to be disappointed, that it has come to be somewhat skeptical in regard to the announcement of great discoveries outside the field of therapeutics in which it has been accustomed to work.

"The theory of the bacteriologist is that each disease to which the human flesh is heir, is due to a specific and preexisting germ, and it is his dream, (note that it is only a dream) that by inoculation with attenuated culture of such germs, he can make the body immune to their presence."

The bacteriologists have become so strong in the faith that during the past few years, beside the many new discoveries(?) there have also been many new laws passed, and many more proposed. From the four points of the compass come continual warnings, mingled with much fear and trembling. From one direction come reports of an attempt to compel all physicians to use antitoxin; from another the claim that "medical science has proved that consumption is purely contagious."

From another is brought the intelligence of an attempt to pass a law that "any employe or pupil under the jurisdiction of the public school department, *suspected* of having pulmonary tuberculosis (consumption) must either leave or submit to a *bacteriological examination* by the *city bacteriologist,* whose findings shall be the only

evidence(?) required by the Board of Education."

It has been supposed that every question had two sides, but bacteriology has not.

While the bacterilogoists mentioned are striving to carry their various plans into effect, there are others trying to pass a law giving them official power to decide what diseases are contagious and those that are not. And on the memorable night of January 14, 1901, the city of Chicago actually passed a law to the effect that "No person shall spit upon any public sidewalk," etc. According to the paper which published the proceedings, the reason for the passage of this remarkable law was "the latest discovery of science and medicine proves that grip, pneumonia, etc., are spread through the habit of spitting."

Fearing that these laws and these claims may carry the reader back to the Middle Ages, and that he may forget "where he is at," the author hastens to repeat that these remarkable events and discoveries took place in the city of Chicago, U. S. A., A. D. 1901.

In order to give the reader the cause of grip more clearly, permit the author to quote Dr. Finkler a prominent germ theorist. Dr. Finkler says: "I am inclined to accept the views of Leichtenstern that there exists a pandemic influence caused by the Pfeiffer bacillus, and also an epidemico-endemic influenza" or grip "of

identical nature which develops after the pandemic infection has run its course, being caused by the germs left over."

Comment is unnecessary. Undoubtedly the bacteriologists dislike to use so many technicalities as presented in Dr. Finkler's explanation (?) yet they find it necessary when they wish to convey a meaning (?) which no one can understand.

The brave councilman who stood sponsor for the new Chicago bill will undoubtedly receive a chromo from Germany, France, Italy or Spain, because these countries are the originators of the various methods of saving human life. And while the Chicago councilman may have acted simply as an echo, having first received a tip by telephone, this should not detract from the great credit due him. For while we all realize (?) that the United States plays second fiddle in the great problems of life and death, it is not every one who has the moral courage to stand up and acknowledge it.

Evidently the foreign messages were poured into the ear of the Chicago councilman with less trouble than that experienced by "Dinkelspiel" (Geo. V. Hobart). The latter was trying to telephone to Mars, and he said that just as he was ready to speak, the nonconductor hit the quadruplex in the resistance coil, and spilled the current for about three miles between the milky way and the dog-star. The polar zinc hit the magnetic

copper, which caused the ground wires to grab the circuit between the switch-board and planet Venus, thereby making the ratio unequal to the dividend where it meets the voltage; the trouble was further increased by the vibrations under the armature of the resistance, where the magnetic needle meets the inductor of the home plate, and in pushing aside the wires by a passing comet. Instantly the wires spluttered and went out, and the operator picked up a few loose technicalities as souvenirs, and went home.

The Chicago health board should place refrigerators on the street corners, to prevent sweating during the heated months, for during perspiration the pores of the skin are widely dilated, and there is nothing to prevent the treacherous germs from entering the bodies of innocent victims; swallowing should also be strictly forbidden, for fear of carrying germs into the system. Maybe "mosquitoes do cause yellow fever," but if the mosquito has got his foot in it, it will serve as a lesson to let other people's business alone. But we should not allow our sympathies to go over on the side of the mosquito, but rather let us give encouragement to the unfortunate policemen of Chicago, who will now be compelled to allow burglars, foot-pads, and other criminals to follow their own sweet wills, while they (the policemen) are chasing spitters. Even now we can hear those officers cry out, "Of

all sad words of tongue or pen, the saddest are these, it might have been"—otherwise. There is "no rest for the weary?" Well, hardly; not if they gather in all the spitters. And it is safe to say that either the spitters or the Chicago police force will be "all run down" before the question is settled.

The germ theorists have surrounded us with so many dangers that suicide would seem our only means of escape. According to bacteriology it is not safe to breathe for fear of taking in the tubercular germ, or to eat or drink for fear of taking in the typhoid germ, while kissing your best girl is fraught with dangers too numerous to mention and too terrible to contemplate. At first the germ theory was, oh, so easy, so delightfully simple. It was this: "Every contagious disease was due to a specific germ. No germ; no disease; eliminate the germ, cure the disease." This was a plain statement which all could understand. Then Sanarelli, Yersin, Roux, Koch, Metschnikoff and a few other self constituted leaders took the reins and since then have been running the whole business. It is said the "wise men came from the East," and the author believes that if those mentioned had known so much they would have come along with the rest.

Even the bacteriologists admit that there are innumerable cases of infectious disease where no germ can be found, and also innumerable cases

where the germs are present, and no disease can be found, and as a result they have tried to get out of the difficulty by saying: "Bacteriologists have come to recognize that not the presence of the germ, but some virulent condition of the microbe causes the disease. In other words the diseased condition seems to be common to both germ and patient, and the problem which really confronts us is to find out what ails the germ." The author believes that the germ is all right, and respectfully inquires what ails the bacteriologists? Again, if the "disease is common to both germ and patient," let us ask, does the patient take the disease from the germ, or does the germ take the disease from the patient? "For years the more advanced (?) bacteriologists have been brooding in the laboratories over test tubes and microscopes, working with the various liquid mediums, raising little bugs, and by injecting them into animals they have been trying to disclose the mysteries of disease. By this means they have daily arrived at new and more important conclusions. These conclusions have emanated from the sacred incubator, which was presided over by the professors themselves. These discoveries would be of vastly more benefit if kept secret within the walls of the renowned institutions in which they were born. Bacteriologists publish sensational accounts of the dire evils which would happen to the people if it were not

for their deep study and watchful care, and when we read the glowing accounts of these life preservers, we feel that "Life, liberty and the pursuit of happiness are little enough to give in return." But alas, just as the bacteriologists have reached the topmost wave of prosperity, it is discovered that germs are not at all diagnostic of disease."

Since our late unpleasantness with Spain we have heard much about bubonic plague. The writer has just read a pamphlet on bubonic plague written by Dr. Walter Wyman, a noted bacteriologist. The Doctor claims the disease is caused by a germ, and he describes the plague germ as a "cocco-bacillus." Coccus means round like a ball, and bacillus means long like a rod. It is known that many times bacteriologists do not agree, and this wise division is understood to be for the purpose of giving both sides an equal chance. The advice furnished by Doctor Wyman and other bacteriologists is given in large quantities. Such generosity reminds us of the Irishman's will, which, condensed, reads something like this:

"I bequathe to all mankoind the free air of hiven, all the fishes in the sea they can ketch, and all the birds in the air they can shute. I bequathe to thim all the sun, moon and stars. I lave to Timothy O'Flaherty one pint of potheen I can't finish. May God have mercy on O'Flaherty."

The author wishes to note briefly another class, the manufacturers of animal extracts; those whose penetrating eye and revolving brain first saw the elements of health in the secretions of the long whiskered goat, and who first breathed the words *Roberts' Lymph.*

The bacteriologists are unable to give us the cause of disease, but they can tell us of the germ. The bacillus-tuberculosis of Koch, and later the staphyococcuspyogeneseaureus and last the cocco-bacillus. The importance of this combination bacillustuberculosisstaph ylococcuspyogenesaureuscoccobacillus cannot be overestimated, nor can it be fully appreciated except by the disciples of Koch.

Dr. Wyman is Surgeon General, Marine Hospital Service, and after explaining(?) how the germ enters the body, the doctor says regarding the spread of disease that rats, fleas and insects are the most probable means of conveyance. Then Dr. Wyman himself asks the stupendous question: "How is the disease conveyed from rat to rat?"

Regarding this grave problem the doctor solemnly declares: "It is very possible that the fleas which infest rats, and which notoriously leave their bodies as soon as the cadavers "(dead bodies)" become cold after death, may, by their bites infect other rats." It will readily be seen that no one but a bacteriologist can prove these questions. Prove them as clearly as it is said

Chauncey Depew proved that prices do not depend upon supply and demand. Chauncey's butcher told him that sausage was worth twenty cents a pound. You asked twenty-five this morning, didn't you? "Yah, dot vas wen I had some. Now I don't got me some, I sells him for dwenty cents. Dot makes for me a reputations for selling scheap, und I don'd lose noddings." Mr. Depew did not want any sausage, and the dealer had none—no demand, no supply—yet the price changed.

Through the influence of the bacteriologist, the senate and legislative bodies of our several states, have been wrestling with the wily germ for many moons. It is not long since the Attorney General of Michigan was asked to lend his aid in checking an epidemic of measles in Detroit. To send a lawyer to quarantine a case of measles is certainly a very good way to advertise yourself. Another way which the author wishes to suggest is to join the ranks of those who have shown such a fondness for that long whiskered animal so frequently mentioned in the books of Moses, and from whose secretions is manufactured what the author believes to be a pious fraud, Roberts' lymph.

The crowning virtue of manhood is man, and as the coming centuries roll over their ashes, their names will be held in as profound respect as if angel purity had given the impress of divinity to their every action. "As time ad-

vances their deeds will become richer and holier until they command the respect and reverence of every beholder. A nation may be lost in the whirlpool of revolution and strife, yet the names of great men will remain as enduring as time."

The men who have led the world in peace and war, who have snatched victory from land and sea, who have made the world beautiful and grand, who have labored for the advancement of the human race, labored to place man on a higher plane intellectually, labored to relieve suffering and prolong human life, have been prompted by the demands of imperious duty, based upon the divine principles of equality. As time advances the progress and successful termination of the principles for which they struggled combine to throw around them a halo that fills the reader with admiration.

Do unto others as you would have others do unto you was the watchword in heaven before this mighty world was spoken into existence, and its melody will be chanted through the rolling ages of eternity. These magic words are still the guiding star to all who are striving to dispel the mists of superstition and place benevolence and right before commercial interests.

"Justice is one of the noblest attributes of man. It soars above self and is prompted by honest motives. It aims at glorious ends. It

is not confined to any nation, country or caste. No sectarianism can swerve it, no monarch suppress it, and no obstacle paralyze it."

Contrast such principles with the gigantic system that has been built up during the last few years, founded upon the present day germ theories and supported by what is called serum therapy, animal extracts and antitoxins. These are simply the filthy blood serums taken from the lower animals and injected into the human system. By this means the bacteriologists claim to be able to cure disease; especially those diseases that are "ketching." Yet it is well known that they cannot cure small pox, measles, whooping cough, scarlet fever, or any other disease. In fact, while Health Boards and other bacteriologists manufacture and use antitoxins for many diseases, they have proved such utter failures that of late we hear little of them, except antitoxin for diphtheria. The others have faded from view until even the most sanguine bacteriologist is ashamed to speak of them. Antitoxin for diphtheria will meet the same fate. The same is true of animal extracts. In fact, the whole germ theory with its auxiliaries, although encased in an armor of self-pride and arbitrary leadership, will die a natural death.

The author realizes that State Boards of Health and serum manufacturers would move heaven and earth to maintain their commercial

interest and pose as leaders of the medical profession. But theory versus facts will never succeed. "Truth crushed to earth shall rise again." The germ theories are fading. Truth and realities are taking their place, and soon they will lie buried beneath the charitable mantle of natural progress. Even now it is estimated that less that half the medical profession believe the doctrine. Yet the efforts of those who support its claims have resulted in vast business enterprises which extends their interests throughout the civilized world. So skillfully has this been done that the public look upon each move with the greatest admiration, and wonder what science will discover next. What is the result of this marvelous and complicated system of research? Why, there is no evidence that the bacteriologists have ever prevented a single disease or saved one human life. On the contrary, with the discovery of each new (?) microbe, the scythe of death cuts a new swath in the ranks of living men and women. This fatal termination is the natural result of testing some new serum or animal extract, and is also influenced by the excitement and fear created by some startling claims made by the State Boards of Health or other bacteriologists. The author believes the so called science is the outgrowth of gigantic commercial interests, which are supported by those who are acting contrary to natural laws, laws which are repellant alike

to science and humanity. It is publicly stated that some of our philanthropists are to build an immense institute for medical research. (?) We are told that the proposed institution is to be established on the theories of Koch, Pasteur, and other commercial scientists in Europe. The chief event which made the name of Koch famous was the construction of a colossal edifice of pretense, to which clung the desperate hopes of countless consumptives—only to be crushed when it fell, or when Koch's tuberculin was pronounced a fraud by the civilized world.

Again, when we turn from this financial enterprise to that of Pasteur, of hydrophobia fame, we find that during the past fifty years there probably have not been so many cases of hydrophobia in the United States as have occurred in Paris in one year, and Paris is the home of the Pasteur Institute. This corresponds to the statement of James Howard Thornton, C. B. M. B., Fellow of Kings College, London, that the inoculation of the Pasteur antirabic serum often produces hydrophobia. The same as antitoxin for diphtheria often causes death. It is stated that at the April 9th, 1900, meeting of the medical association of the greater city of New York, antitoxin for diphtheria was almost universally condemned by those who spoke.

We remember the teaching that every animal lives upon another. The stronger devouring

the weaker. That every mouth is a slaughter-house and every stomach a tomb, and that over this precipice runs a perfect Niagara of blood. The writer believes that trusts, Boards of Health and other monopolies, possess this gormandizing power to a remarkable degree, and, while his efforts may be weak, the author will lend his influence to aid in checking the tremendous tide of commercialism that underlies the germ theories, the manufacture of animal extracts, serum therapy, and antitoxins.

The millions of public money now turned into the channels of so called medical science, and for which Boards of Health are largely responsible, should be converted into institutions where the grand yet simple truths of hygienic living could be open to all. Health must be obtained by temperance, purity, cleanliness, a contented mind and cheerful spirit, and by healthful atmosphere, rendered pure by the untiring operation of nature's laboratory; and not by inoculating the system with poison from diseased animals or dug from the brains and entrails of tortured brutes. "But self is the Sahara of the human heart, where all the noble powers of the soul are buried in its scorching sands." The mournful process of trying to extract your health from another's disease, or your comfort from another's misery, should be exchanged for that preventive medicine, that beautiful gift—an untainted system. As stated, *Microbes* and *Health* gives a lucid

exposition of the germ theories. An analysis which the author believes will be readily understood and accepted by all.

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